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WTP.

THE MOTOR WORLD.

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE
AND KINDRED INTERESTS

Volume XII.

New York, U. S. A., Thursday, February 1, 1906.

No. 1

YEAR'S EXPORTS, \$2,695,655

Government Statistics Show Increase of
\$800,000—Where the Cars Went.

During the year 1905 American automobile exports reached the substantial total of \$2,695,655, which, when compared with the showing of the two previous years, reveals the amazing growth achieved in that short period. From \$1,643,029 in 1903 to \$1,897,510 in 1904, hardly represents more than a normal increase,*but the jump of practically \$800,000 recorded by the figures of 1905 supplies convincing evidence of the extent of foreign demand for the American made machine. Study of the detailed report for the year brings to light the fact that England and Englishmen wherever found are the heaviest buyers. The United Kingdom heads the list with \$707,045, with British North America a close second at \$537,588. Next in order comes France with \$269,703—a generous showing indeed to send to the "only country that exports cars to the United States in any quantity."

Other Europe with \$239,379 is the only other item topping the \$200,000 mark, Mexico with \$192,452 and Italy with \$163,978 showing substantial gains over last year, while \$151,859 to the West Indies and Bermuda, Germany with \$105,457 and \$120,083 to British Australasia complete the list of items of six figures.

The total for the month of December, 1905, amounting to \$196,645, is a generous advance over that of the month just preceding it, \$129,389, but shows a slight falling off as compared with December of the previous year—a fact, however, that had little effect on the annual returns.

The tabulated figures for the month of December and for the twelve-month then ending, are as follows:

	Year ending December 1905	December 1905
Exported to—		
United Kingdom	75,258	707,045
France	7,645	269,703
Germany	1,651	105,457
Italy	4,073	163,978
Other Europe	1,477	239,379

British North America.....	23,827	537,588
Mexico	29,672	192,452
West Indies & Bermuda	20,498	151,859
South America	5,507	61,419
British East Indies	696	31,793
British Australasia	8,964	120,083
Other Asia and Oceania	2,699	63,577
Africa	5,760	39,288
Other countries	8,918	12,034

Total\$196,645 \$2,695,655

"Open Air Show" up Again.

The old idea of an "open air show" which was broached last fall is again being discussed by the New York Automobile Trade Association. It was brought up at an informal dinner of the members on Monday last, but, of course, no definite action was taken. The idea is to have a display of cars at either the Morris Park or Empire tracks in conjunction with a number of track events—not speed contests, but gymkhana races and other competitions designed to demonstrate the capabilities of the cars.

Extent of England's Trade.

During the year 1905, Great Britain exported 1079 cars valued at £376,853 and parts to the value of £125,861, a total of £502,712. The previous year the exports aggregated £321,966. The import trade was, however, of immensely greater proportions. In 1905, 5,622 cars valued at £2,438,002, and £929,121 worth of parts, were brought into the country—an aggregate value of £3,367,123 as against £2,423,940 during the year 1904.

Baldwin Buys Bigger Factory.

To meet the demands of their growing business, the Baldwin Chain and Manufacturing Co. has purchased what is known as the Kent factory, on the corner of Chandler and Bellevue streets, Worcester, Mass. It is a four-story building of modern construction with much adjacent land for extension and in every way admirably adapted for the purposes of the company.

Adams Gives up the Atlas.

Fred H. Adams, of Boston, who has had the New England agency for the Knox Motor Truck Co.'s Atlas truck, has relinquished that holding.

TRAVELING SHOWS NEXT?

Report from Cleveland that Two Trains
Will Tour Country this Fall.

Charles B. Shanks, of the Winton Motor Carriage Co., is authority for the statement that next September will see a broadening out of the idea used to introduce the 1906 Winton to automobile buyers last fall, when it was staged in a special railroad car and exhibited in the chief cities of the country.

"The idea has been enlarged to such an extent," Shanks is quoted as saying, "that next fall will see a traveling trans-continental exhibition of automobiles touring the country in two special trains of ten cars each. The subject was broached to most of the prominent makers at the recent New York Shows, and it is understood that about twenty of them have considered it favorably and will build and equip railroad cars for the express purpose of displaying their cars and using them as salesrooms.

"When all is in readiness the trains will be made up in the East; and will then travel to all parts of the country, the trip lasting about four months. Each car will have its sales agents, and it will really be a big automobile show on wheels, an automobile show that is mobile, as it were. Personally I am much in favor of the plan, as I know from the success of our trip last fall it is a good thing."

It is known that G. A. Wahlgreen, of Denver, is exploiting such a scheme, but Shank's is the first open endorsement of it.

Pierce to Build Larger Plant.

A new factory is being built on Elmwood avenue, south of the Belt Line, is to be erected by the George N. Pierce Co., of Buffalo, N. Y., the Hanover street plant being no longer sufficient to carry on the rapidly increasing work. A fifteen-acre plot has been secured as the Elmwood avenue site and plans for the structure are now being prepared. The new plant will have 250,000 square feet of floor space, a capacity of 1,000 cars annually and will employ about 800 men.

In the Retail World.

Charles F. Batt, 1378 Bedford avenue, Brooklyn, N. Y., has taken the agency for the Moon car, a St. Louis product.

In Cincinnati, Ohio, the Cincinnati Automobile Co. has been formed, to handle automobile supplies. It is located at 10 West Seventh street.

Toledo, Ohio, will have a new garage, plans having been filed for one at Bancroft street and Ashland avenue, by L. R. Blood. The building will be 40x120 feet, one-story high and of brick construction.

The McDuffee Automobile Co., of Chicago, is this week moving into its new quarters at 1501-03-05 Michigan avenue. The Northern Car Co. will occupy the former location of the McDuffee Co.

Building plans have been filed for a five-story and basement garage to be erected at 177-179 East Seventy-third street, New York City, for the Automobile Realty Co., of which N. F. Brady is president. The estimated cost is \$60,000.

Carl N. Richardson, of Athol, Mass., and J. B. Manley, of Brattleboro, Vt., have formed a co-partnership under the firm name the Greenfield Automobile Co., and will open shop in Greenfield, Mass. A garage, 40x120 feet, is being erected.

The New York Cab Co., Ltd., has just acquired the three-story dwelling at No. 262 West Fortieth street, New York City. With this purchase the company now owns a lot fronting 103 feet, with a depth of 98.9 feet, on which a garage will be erected.

Mark Guy, the veteran bicycle dealer of Asbury Park, N. J., who last year entered the automobile business, has purchased two lots on Main street near Lake avenue, that city, on which he is erecting a one-story brick garage, 50x100 feet. He is the local agent for the Olds cars.

A new automobile agency in Boston is the Imperial Automobile Co., at 1024 Boylston street, which will handle the Dolson cars in New England. These officers have been elected: President, John A. Seaverns; secretary, Charles F. Webber; treasurer, David J. O'Connell.

Perry P. Calph and Howard J. Brown, of Binghamton, N. Y., have formed a partnership and will trade under the firm name of the Binghamton Motor Car Co. They will occupy a garage which is now being erected on State street. The Pope-Toledo and Olds lines will be carried.

The Newark Motor Car Co., of Newark, N. J., which was incorporated last week, has elected these officers: President, J. M. Kelly; vice-president, George Walters; treasurer, P. Broderson, and secretary. The company has taken over the business of the Reo Company at 283-285 Halsey street, this city.

Fischer Plant Brings a Good Price.

The disused plant of the Fischer Motor Vehicle Co., formerly of Hoboken, N. J., was sold at public auction last week. The

appraisers had valued the whole at less than \$3,500, but the auctioneer secured more than \$9,800.

The Shows on the Slate.

February 3-10—Chicago Automobile Show at the Coliseum, under auspices of the N. A. A. M.

February 3-10—Washington Automobile Show, under auspices of the Washington Automobile Dealers' Association, Inc.

February 9, Chicago—Annual meeting American Motor Car Manufacturers' Association.

February 11-12—Second Annual International Road Races at Havana, Cuba.

February 12-17—Detroit Automobile Show, under auspices of the Tri-State Automobile and Sporting Goods Association.

February 19-24—Cleveland Automobile Show, under auspices of the Cleveland Automobile Dealers' Association.

February 24-March 3—Philadelphia Automobile Show, under auspices of the Philadelphia Automobile Trade Association.

March 5-10—Buffalo Fourth Annual Automobile Show, under auspices of the Buffalo Automobile Trade Association.

March 10-17—Boston Automobile Show, under auspices of the Boston Automobile Dealers' Association.

April 2-7—Toronto, Ont., Automobile Show.

Berkshire to Boost its Capital.

Quite a substantial increase has been made in the capital stock of the Berkshire Automobile Co., of Pittsfield, Mass., it having announced at the annual meeting held in Pittsfield last Saturday, that the capital would be increased from \$50,000 to \$250,000. Of this \$75,000 will be preferred, seven per cent. No change was made in the management, the old officers being re-elected as follows: President, Dr. William J. Mercer; vice-president, John McQuaid; treasurer, Fred A. Cooley; clerk, Walter T. Casey. The old board of directors was also re-elected.

Here's the "Incredible Car."

In the effort to find catch-phrases to fit their cars, some advertisers are straining the English language to the limit. When, however, one of them styles his car "The Incredible Car," the limit appears to have been passed. According to the dictionary incredible means "beyond or difficult of belief."

Trenton "Sees" a Factory Coming.

Historic Trenton, the capital of the State where they are now trying to abolish automobiles, has visions of an automobile factory. John L. Huser and a number of capitalists are reported to be negotiating with a New York concern to establish a plant there.

The Week's Incorporations.

Los Angeles, Cal.—Angelus Motor Car Co., under California laws, with \$30,000 capital. Corporators—F. K. Eckley, A. C. Lusby and W. G. Nevin.

Cambridge, Mass.—Northern Automobile Agency, under Massachusetts laws, with \$10,000 capital. Corporators—Charles Haigh and D. A. Sansser.

New York City, N. Y.—New Century Auto Co., under New York laws, with \$1,000 capital. Corporators—W. B. Frank, David Lamb and F. S. Kelly, Jr.

Buffalo, N. Y.—Standard Garage Co., under New York laws, with \$10,000 capital. Corporators—F. Gentschl, W. C. Schultze and J. G. W. Knoll.

New York City, N. Y.—Mexican Automobile Co., of New York, under Delaware laws, with \$100,000 capital; to deal in automobiles. Corporators not named.

New Haven, Conn.—Foster Motor Co., under Connecticut laws, with \$25,000 capital. Corporators—John W. Hine, Charles W. Floater and Robert A. Bronson.

Somerville, Mass.—Somerville Automobile Agency, under Massachusetts laws, with \$5,000 capital. Corporators—Frank D. Wilkins and A. P. Schoonmaker.

Dover, Del.—Hercules Truck Co., of Philadelphia, under Delaware laws, with \$100,000 capital; to make and sell patent device known as the Hercules truck. Corporators not named.

Cleveland, Ohio.—Auto Shop Co., under Ohio laws, with \$50,000 capital. Corporators—Carl F. Schroeder, Ira B. Sperry, Walter C. Schroeder, Milton W. Lusk and A. L. Maurer.

Los Angeles, Cal.—Southern California Motor Car Co., of Los Angeles, under California laws, with \$50,000 capital, \$10,000 paid in. Corporators—J. E. Paul, J. J. Paul and C. W. Hershey.

Cleveland, Ohio.—Oliver Electric Vehicle Co., under Ohio laws, with \$10,000 capital. Corporators—E. C. Mulleen, A. H. Parrott, H. A. Mulleen, Sherman Arter and M. Barnes.

New York City, N. Y.—Inter-State Automobile Clearing Co., under New York laws, with \$50,000 capital; to sell automobiles. Corporators—C. A. Wardle, W. E. Metzger and G. H. Stillwell.

New York City, N. Y.—Arc Spark Mfg. Co., under New York laws, with \$10,000 capital; to manufacture spark-plugs. Corporators—K. J. Wideen, C. J. Pearson and F. T. H. Bacon.

Paterson, N. J.—Motor Car and Storage Co., under New Jersey laws, with \$10,000 capital; to conduct a garage. Corporators—H. Coulson Fairchild, Alfreda Fairchild and Hattie A. Berry.

Alexandria, Va.—Rock Creek Auto and Wagon Co., under Virginia laws, with \$30,000 capital; to deal in and repair automobiles. Corporators and officers—T. O. Proby, president, J. Barton Miller, treasurer; L. E. Shoemaker, secretary.

NOW FOR CHICAGO'S SHOW

It Will be Bigger and Better than Ever Before, but Will Resemble a Well-Thumbed Book—Who and What Will be There.

Chicago will open its biggest and its best automobile show on Saturday night next. It will outdo New York in this respect: The patriotic Chicagoian will be able to shout exultantly, "Two shows for the price of one." For it will be so big that the Coliseum, which has served for so many years, will no longer contain it. The "overflow" will be housed in the First Regiment Armory "down the way" and connected with the Coliseum by an alley. One fee will admit to both.

Manager Miles, who used to live in Chicago and who visits it occasionally—always at this time of each year—when he is not residing in New York or skirting around Denver, says this Chicago show will be the national show, with a capital N and emphasis on "the." Miles figures it this way: He and the National Association of Automobile manufacturers will divide the pot, and as the N. A. A. M. held no show in New York this year—there were two instead of one held here—presto! the Chicago show is the national show—don't forget to emphasize that "the." It is just as easy to figure it out as to roll off of a log. The figuring is very creditable to Miles's ingenuity and it does the Chicago show, or any other show, no harm.

"For the fun of the thing," let it be styled the national show. Then look at it closely and behold the dimness of the stars in its nationality. The lustre is off of them all. It was removed by the New York shows and 'twas ever thus. This is not the fault of nor to the discredit of Miles, or Chicago or its show. It simply cannot be helped. The New York shows came first and never before were there so few absentees. The Western makers followed the star Eastward in such force as they never had followed it before. When this sort of thing happens, whatever may come afterward, naturally lacks lustre, and so it is that the Chicago show to the very many men who spent the eight days in New York, must appear like a well-thumbled book, bound in a new cover and containing here and there a new picture, but still a very familiar volume.

The cover of the book which Chicago will provide will be handsomer than any cover Chicago ever provided before. The harmony and uniformity of design and decoration, now deemed the proper caper for automobile shows, will prevail at the Western exhibition. There will be Dutch paneling of Flemish oak in a setting of green and gold and a lot of white plaster of paris

fashioned into automobile designs, and all that sort of thing. The signs over each exhibit will not be of paint, but will be constituted of a row of small metal shields on each of which a letter will be enameled; the shields will be suspended by chains with "shirred art drapery" of old gold for a background. The signs will be flanked by grouping of electrically lighted globes.

In a word, this Chicago show is likely to prove an agreeable surprise in respect to the beauty of its setting and its trappings. If any true blue Chicagoian, even those who did not see the New York functions, does not agree that "this knocks New York silly," well—he won't be a true blue Chicagoian, that's all.

It has not yet been made plain whether that peculiarly exclusive feature of previous Chicago shows is to be perpetuated—the "nigger lady" or "boy wonder" who lifts up her or his voice in song several times each day and evening and thus fill with joy the soul of the man who is intent on making a sale or otherwise transacting business. To date, no Chicago show has been complete without this feature. One of the most interesting speculations has to do with the completeness or incompleteness of this show in that regard and as to whether the warbler will be black or white, male or female.

In all, 205 exhibitors have engaged space at Chicago, of whom 48 were not represented in New York. Of the 205, eighty-one will show cars, only eleven of which were not in evidence in either of the metropolitan exhibits. These cars are the Auburn, the Adams-Farwell, the American truck, the Chicago, the Holsman, the Kansas City, the Pierce-Racine, the Soules, the Synnesvedt, the Tincher and the Gales, all save three of which are made in Chicago or within easy distance of it.

The full list of exhibitors and the goods they will display is as follows:

MF-C—Main Floor-Coliseum.
FF-CA—First Floor Annex-Coliseum.
SF-CA—Second Floor Annex-Coliseum.
G-C—Gallery-Coliseum.
MF-A—Main Floor-Armory.
G-A—Gallery-Armory.

Acme Motor Car Co., The, Reading, Pa.—Space 41 M. F. A.—Acme cars.
Adams Co., Dubuque, Iowa, Space 50 M. F. A.—Adams-Farwell air-cooled cars.
American Electric Novelty & Manufacturing Co., New York, Space 136 G. C.—Alvin self-starter.
Aerocar Co., Detroit, Mich., Space 247-248 S. F. C. A.—Aerocars.
American Locomotive Motor Car Co., New York, Space 3-4 M. F. A.—American Berliet cars.
American Motor Truck Co., Space 2 M. F. A.
American Lamp Co., Chicago, Ill., Space 61 M. F. A.—Searchlights and Headlights.
Apperson Bros. Automobile Co., Kokomo, Ind., Space 96-97 M. F. C.—Apperson touring cars.
Atwood Mfg. Co., Amesbury, Mass., Space 201 G. C.—Lamps and generators.
Auburn Automobile Co., Auburn, Ind., Space 122 F. F. C. A.—Auburn cars.
Aurora Automatic Machinery Co., Aurora, Ill., Space 138 G. C.—Thor Motorcycles and parts.
Austin Automobile Co., Grand Rapids, Mich., Space 119-120 F. F. C. A.—Austin cars.
Auto Accessories Mfg. Co., Detroit, Mich., Space 59-60 G. A.—Rain covers and lap robes.
Auto Importing Co., New York, N. Y., Space 14 M. F. A.—Rochet-Schneider cars.
Autocar Co., The, Ardmore, Pa., Space 5-6 M. F. C.—Auto cars.
Automobile Supply Co., Chicago, Ill., Space 264 S. F. C. A.—Accessories.
Arnstein, Eugene, Chicago, Space 56 G. A.—Accessories.

Autocoil Co., The, Jersey City, N. J., Space 139 G. C.—Spark coils.
Badger Brass Mfg. Co., Kenosha, Wis., Space 162-163 G. C.—Solar lamps.
Baker Motor Vehicle Co., Chicago, Ill., Space 85-86 M. F. C.—Electric vehicles.
Baldwin Chain and Mfg. Co., Worcester, Mass., Space 187 G. C.—Baldwin chains, House patent spring recoil check.
Bartholomew Co., The, Peoria, Ill., Space 91-92 M. F. C.—Glide cars.
Belden Auto Transmission Co., Pittsburg, Pa., Space 216 G. C.—Transmission gears.
Beckley-Ralston Co., Chicago, Ill., Space 222-224 S. F. C. A.—Supplies.
Berkshire Automobile Co., Pittsfield, Mass., Space 5 M. F. A.—Berkshire cars.
Blomstrom Motor Co., C. H., Detroit, Mich., Space 8-9 M. F. A.—Queen cars.
Brennan Mfg. Co., Syracuse, N. Y., Space 157 G. C.—Gasolene motors.
Briscoe Mfg. Co., Detroit, Mich., Space 134 G. C.—Hoods, tanks and radiators.
Brown, William H., Cleveland, Ohio, Space 176 G. C.—Dust guards.
Brown-Lipe Gear Co., Syracuse, N. Y., Space 186 G. C.—Transmission and steering gears.
Byrne Kingston Co., Kokomo, Ind., Space 198-199 G. C.—Kingston Carbureters and specialties.
Buckeye Mfg. Co., Anderson, Ind., Space 17-18 M. F. A.—Lambert cars.
Buffalo Electric Carriage Co., Buffalo, N. Y., Space 30 M. F. A.—Electric vehicles.
Buick Motor Co., Jackson, Mich., Space 114-115 F. F. C. A.—Buick cars.
Bowser & Co., S. F., Fort Wayne, Ind., Space 141 G. C.—Gasoline storage outfits.
Cadillac Automobile Co., Detroit, Mich., Space 100-101 M. F. C.—Cadillac cars.
Chicago Caloric Engine Co., Chicago, Ill., Space 66 G. A.—Caloric engines.
Chicago Automobile Mfg. Co., Chicago, Ill., Space 116 F. F. C. A.—Steam cars.
Chicago Pneumatic Tool Co., Chicago, Ill., Space 135-138 S. F. C. A.—Tools.
Columbus Buggy Co., Columbus, Ohio, Space 241-243 S. F. C. A.—Electric carriages.
Consolidated Mfg. Co., Toledo, Ohio, Space 194 G. C.—Yale motorcycles.
Continental Caoutchouc Co., New York, N. Y., Space 274-278 S. F. C. A.—Tires.
Cook Railway Appliance Co., Kalamazoo, Mich., Space 280 S. F. C. A.—Jacks.
Corbin Motor Vehicle Co., New Britain, Conn., Space 83-84 M. F. C.—Corbin air-cooled cars.
Culver Novelty Co., Culver, Ind., Space 86 G. A.—Young's rotary carburetter.
Cushman Wheel Co., Chicago, Ill., Space 257 S. F. C. A.—Sprockets.
Cleveland Motor Car Co., Cleveland, Ohio, Space 24-26 M. F. A.—Cleveland cars.
Dac Automobile Supply House, New York, N. Y., Space 288-289 S. F. C. A.—Sundries.
Daimler Mfg. Co., New York, N. Y., Space 31 M. F. A.—American Mercedes cars.
Dayton Electric Mfg. Co., Dayton, Ohio, Space 150 G. C.—Anne ignition apparatus.
Dayton Folding Tonneau Co., Dayton, Ohio, Space 285 S. F. C. A.—Artz Folding Tonneau.
Dayton Motor Car Co., Dayton, Ohio, Space 27 and 48 M. F. A.—Stoddard-Dayton cars.
Detroit Motor Car Supply Co., Detroit, Mich., Space 211-212 G. C.—Bodies and tops.
Detroit Steel Products Co., Detroit, Mich., Space 208 G. C.—Springs.
Diamond Chain & Mfg. Co., Indianapolis, Ind., Space 182 G. C.—Diamond chains.
Diamond Rubber Co., Akron, Ohio, Space 142-143 G. C.—Diamond detachable and solid tires.
Dietz & Co., New York, N. Y., Space 154 G. C.—Oil lamps.
Divon Crucible Co., Joseph, Jersey City, N. J., Space 217 S. F. C. A.—Lubricants.
Dolson Automobile Co., Charlotte, Mich., Space 40 M. F. A.—Dolson cars.
Dorris Motor Car Co., St. Louis, Mo., Space 233-234-239-240 S. F. C. A.—Dorris cars.
Duff Mfg. Co., Pittsburg, Pa., Space 268 S. F. C. A.—Barrett jacks.
Duryea Power Co., Reading, Pa., Space 13 M. F. C.—Duryea cars.
Edmunds & Jones Mfg. Co., Detroit, Mich., Space 193 G. C.—E. & J. lamps.
Elmore Mfg. Co., Clyde, Ohio, Space 60-61 M. F. C.—Elmore cars.
English Daimler Co., The, New York, N. Y., Space 24 M. F. A.—Daimler cars.
Excelsior Supply Co., Chicago, Ill., Space 272-273, S. F. C. A.—Sundries.
Firestone Tire & Rubber Co., Akron, Ohio, Space 132 G. C.—Firestone sidewire tires.
Fisk Rubber Co., Chicopee Falls, Mass., Space 161 G. C.—Fisk mechanically fastened tires.
Ford Motor Co., Detroit, Mich., Space 111-113 M. F. C.—Ford cars.
Franklin Mfg. Co., H. H., Syracuse, N. Y., Space 102-104 M. F. C.—Franklin air-cooled cars.
Gabriel Horn Mfg. Co., Cleveland, O., Space 204 G. C.—Horns and shock absorbers.
G. & I. Tire Co., Indianapolis, Ind., Space 164 G. C.—G. & I. detachable tires.
Gaulois Tire Co., New York, N. Y., Space 278 S. F. C. A.—Gaulois tires.
Gearless Transmission Co., Glens Falls, N. Y., Space 83-84 G. A.—Friction gearing.

Continued on page 38)

A tire locked to the rim as is A FISK TIRE

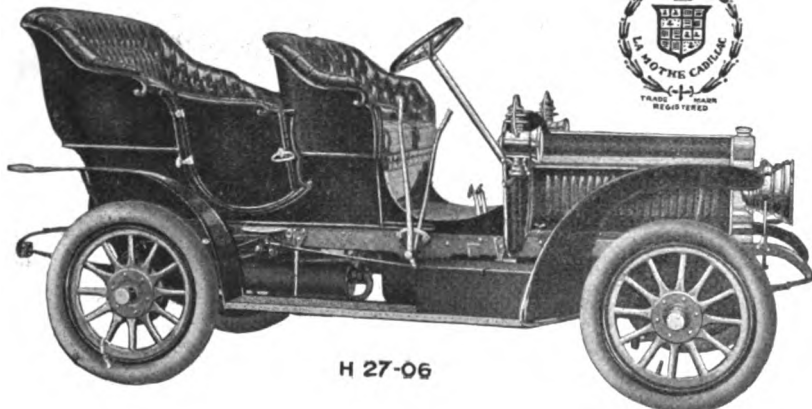
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Wheel base	100 inches.	Motor—Four cylinder	4 3-8 x 5 inches.	Weight	2400 lbs.

Price \$2500 list.

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Same as above but with Runabout body, price \$2400 list.

DRIVE—Direct shaft with specially ground and hardened gears.

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NEW YORK FEBRUARY 1, 1906.

Just Supposin'

Let us suppose that a member of, say, the New Jersey Senate introduced a bill providing

that all horses and drivers or horse-drawn vehicles, shall be registered annually, that the amount of registration fee shall be graduated according to the size of the horse, 50 cents for each hands-high and 25 cents "per hands-high" for each driver,

that no non-resident horseman shall be permitted to enter the State except on payment of \$2 on the occasion of each entry and \$1 for each succeeding day he may remain within the State,

that no person shall be permitted to drive a horse until he shall have filed his photograph with the State authorities and proven his ability to guide and control the animal,

that no person under 18 years of age shall be permitted to drive a horse under any circumstances,

that no breeder of or dealer in horses and

no liveryman shall be permitted to sell or rent out animals, or to loan or demonstrate one for the purpose of effecting a sale, until a registration fee of \$50 per annum shall have been paid,

that no horse or horse-drawn vehicle shall be permitted on the public roads that does not bear numbered tags front and rear, that does not carry a bell or horn, or does not, after sunset or during a fog, display a light front and rear,

that no horse shall be shod with metal shoes and no vehicle be equipped with metal tires because of injury to the roads, that all vehicles be equipped with two brakes, separately applied, and all horses be equipped with muzzles, "hobbles" and "blindlers,"

that all drivers shall reduce the speed of their horses when within 200 feet of any other horse or vehicle and to stop when any other driver may put up a hand or give other signal,

that all drivers shall stop when ordered to do so by any constable and on demand produce registration certificates, personal photographs, etc., and permit inspection of his animal or vehicle or both,

that the right of any driver to use his horse on the common roads may be permanently revoked by any court or justice of the peace,

that these rights may be revoked also at the pleasure of the Commissioner of Horse-Drawn Vehicles' Regulation and Registration,

that in the event of arrest and acquittal for violation of the law, the verdict of "not guilty" shall be of no effect in restoring the rights,

that violations of the law shall be punished by fines up to \$500 or imprisonments up to 60 days,—

Let us suppose that such an act became a law in, say, the State of New Jersey—would there be a riot, a revolution, or merely a lynching of the man who proposed it, or the murder of the first constable who dared to hold up the horseman for examination?

Would any legislator dare propose it?

Would any court in the land uphold it?

Would any neighboring State suffer it to exist without immediate retaliation on the citizens of New Jersey?

If such a law is just and proper for one class of vehicle, why is it not just and proper for all classes of vehicles?

Are the roads made for all men or chiefly for horsemen?

Is the use of the public roads to be made a revokable privilege for one class of citizens and an inalienable right for all other classes?

Is citizenship, which includes the right to lawfully use one's property when and where he will, to be measured by one's means of locomotion?

Is this right to be nullified and this property to be rendered useless at the whim of any justice of the peace or any other man, although an offending citizen may have already suffered a fine or imprisonment for an offense which he may have committed?

Is the law to be permitted to pursue a man after he has paid its reasonable penalties, such as are meted out to all men?

Do "police powers" constitute a license to impose double or triple taxation and to curtail personal liberty and enjoyment of personal property?

Are the United States, or any of them, to be made a despotism or are they to be maintained as a republic in which all men are truly free and equal?

If such a law is republican freedom, what is despotism?

Tests that are Desirable.

In a certain sense, the completion of the motor testing plant at Purdue University, the first of its kind in this country, which was referred to at length last week, is full of significance. Isolated makers here and there may have used rollers for testing purposes, certainly all of them employ some method of measuring the output of the motor when first assembled, but the testing of a motor or even a complete machine under such circumstances, is a very different matter from the impartial investigation which is possible with apparatus such as Purdue has set up.

The development of the motor car up to the present time has been largely by rule of thumb—each maker working out his own designs, or adapting those of other makers, and refining the machine by the simple process of trial and error. Until within a year or two, there has been no well established practice in any one line, barring a few of the less important details. More than this, there have been no well authenticated text books on design, and the desultory technical articles appearing from time to time have been too diffuse and scattered to cover the entire field, or even

any one portion of it with any degree of completeness and satisfaction to the draughtsman.

Now, however, rapid strides are being made in the theoretical problems connected with the building of the car, notably in connection with the various associations of the makers or engineers in one way and another. There is a great deal, however, which is either too broad and comprehensive, or too specific, to come well within the province of such organizations as these, and which therefore must remain untouched except for the efforts of the independent investigators.

This is work for which the schools and alliances of the users are especially fitted, and to which they may well confine a good share of their attention during the next two or three years. There is much to be learned, particularly in regard to the precise variations of road resistance under varying conditions of surface and weather. Another field, which also, is barren of authentic data to a great extent, is that of the efficiency of the transmission system, and its behavior under various conditions on the road. These matters are best got at by means of some application of the principle of the transmission dynamometer fixed directly to the car, and read under actual service conditions on the road. So far as is known, no work of this sort has as yet been attempted. It is fraught with difficulties, almost too numerous to mention, yet it is by no means impossible of accomplishment, granted only the time and means to work it out. And it is work which will well reward the experimenter both in itself, and cumulatively, through its benefit to the industry.

Factors that Effect Sales.

Of all the factors that influence the inexperienced purchaser in making a choice of a car, probably none has such weight as its silent operation and smooth running. It must be borne in mind that the buyer of to-day has a wide range of available models from which to choose—he is no longer confined to a comparatively few cars which are within his means. The most advanced ideas and types of construction are now represented by cars at figures which would not secure the most crude specimens but a few years ago.

Take a man whose only knowledge of the car is confined to what he has gained from seeing them coursing up and down the streets or along country roads, or grant that

he has had an opportunity to ride in one or several makes, he usually brings a more or less unbiased mind to bear upon the subject and it cannot be doubted that first impressions count. And if these first impressions consist of an unpleasant recollection of the amount of noise and discomfort arising from the operation of the motor with its attendant vibration they are apt to be remembered unfavorably rather than otherwise. Easy riding qualities cannot, of course, be overlooked or underestimated as a factor in bringing about sales, but as demonstrations in the majority of instances are over smoothly paved streets in the city, they constitute a factor which is thus not permitted to enter into the question.

Considered from whatever point of view that varying individual opinion may suggest, in the aggregate the different points suggested by the so-called sharps for criticism, may all be simmered down to the matter of quiet and easy operation. The average human being is not fond of being constantly in close proximity to any source of noise or vibration, regardless of how exhilarating the result of the energy developed may be, and of which the racket represents but power wasted. If this be true of a man, how much more so is it of a woman? And the salesman who does not figure on the influence of the eternal feminine is disposing of cars is apt to reckon without his host and find himself a sadder but wiser man at the end of the season.

The statement that the opinion of a wife or daughter is most often the deciding word that closes the sale is one that will meet with few dissenting voices. True enough, the die may be cast against the giver of free rides and the expounder of the car's multitudinous advantages possessed by none other, for no more weighty reason than the fact that some feminine member of the family, whose word is law, cannot consider herself becoming in such a setting. The upholstery or the color of the car may be too blonde or too brunette, as the case may be. Or it may be such a "funny" looking car, or again she does not favor it "because." Both these are overpowering arguments in feminine logic. They are the final word and there is no court of last resort to overrule them.

But if he can in the first instance show a car that performs creditably in the matter of silent and easy operation, he has already scored several points in his favor. All the argument in the world on the intricate subjects of engine and transmission design,

exclusive mechanical features and the like, which interest the uninitiated prospective owner merely as possible sources of trouble in the future, with an attendant increase in his knowledge of mechanics as well as his vocabulary, and his wife not at all, because they are mere "works," cannot dispel the unfavorable impression that those same advantages leave when they are shown off for his benefit. It takes more than a "heap of talk" both before and after a demonstration to convince even the most unsophisticated individual in things automobile, that a car which pounds and hammers its way along is better than one in which the presence of the motive power is only audible to a degree sufficient to constitute a reminder that it is still there.

Take the average man who is making his first plunge and his ideas of what he wants have been gained either as an onlooker at the game or from the seat of someone else's car. In the latter case he most frequently will want either a duplicate of his friend's car or something that bears as little resemblance to it as possible. He will either be a firm disciple, satisfied with none other, or a sincere enemy, ready to accept any other that has no features in common with the object of his aversion. But in the former case, his ideal is something as silent as an electric with many its times speed and power.

So much for the inexperienced one with a desire to become the possessor of a car. But how much more is the same thing true of the man who has had sufficient experience to know that noise is a totally unnecessary element of the working of a good motor and its accessories. A car that is at all noisy when brand new will become more and more so with age, and the promise is not a cheering one. If, when in the pink of condition, having been run just enough to make everything smooth and well worked in, the machine grunts and puffs unduly or manifests an inclination to produce sundry other indescribable noises, it is hardly to be wondered at that the new hand should have misgivings finally crystallizing in a dislike for the car, while the man who recognizes the symptoms, comes to the same conclusion, though by way of a different process of reasoning. It will be found profitable in the long run to even go to the extent of postponing a demonstration, when the car for some reason or other is not in condition to do its builders credit in this respect, for it is a difficult matter to counteract the effect of first impressions.

Two Miles a Minute a Reality at Last

America and France Share the Honor—Record Breaking Alone Saves the Florida Carnival from Abject Failure.

Ormond, Fla., Jan. 29.—Two miles a minute, or rather better than two miles a minute is at last a fact.

Fred Marriott in the 30 h. p. Stanley steamer was the first to accomplish the

about as dull, as dismal and as bedraggled and as disappointing an affair as ever has been held.

D's—big D's and many of them, best represent the feelings of all those who at-

nice chap, doncherknow. He owns a "man" and a mirror and both must have told him that his coats were "resplendent." They looked like a cross between a squaw's blanket, a warrior's foot-robe and a Mardi Gras



MARRIOTT IN THE STANLEY RUNNING AWAY FROM LANCIA IN THE FIAT.

feat. Victor Demogeot, who substituted for the deposed Hemery in the 200 h. p. Darracq, was the second one. The American fairly flew the distance in $59\frac{3}{4}$ seconds, the Frenchman thundered it in $58\frac{1}{4}$ seconds, a pace of $127\frac{1}{2}$ miles per hour. These stupendous performances were done to-day, the last day of the carnival, and an extra day at that.

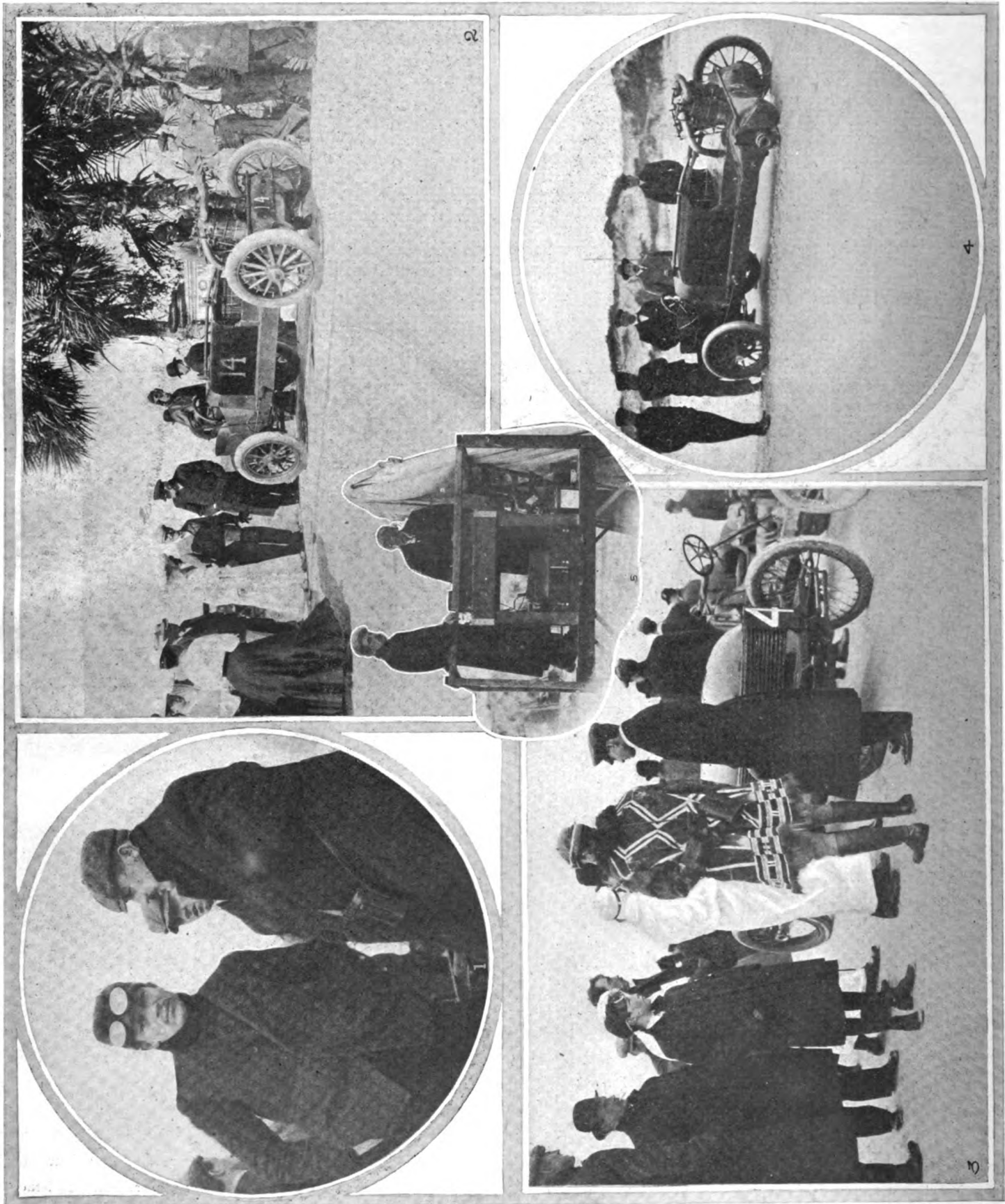
It is a good thing for Florida that two miles a minute is a fact; for except for the phenomenal string of records that were created, this Ormond beach speed carnival, or whatever it may be termed, has left nothing but bitter tastes in the mouths of the visitors. Not even the correspondents who are here or were here as the guests of the hotel and the manager of the carnival, will be able to disguise the unpleasant fact. Speed—unlimited speed is about all there was to it. In every other detail it was

tended. Perhaps a twelve-month may eradicate the bitter taste which now exists; but at this moment there are many who are predicting that if the Florida carnival of 1906 does not prove the last one, it will be because of some wondrous changes in the management. As was stated last week, the number of visitors was much smaller than last year and but for the excursions from the surrounding country, few would have witnessed the sport, with full apologies to the word. "Society" remained conspicuous by its absence and professionalism was written so broadly about everything that occurred that there was no chance for enthusiasm, even had the weather permitted it, which certainly was not the case. Although Mrs. Howard Gould and her hats and husband were among the missing, Mrs. Gould's hats were partly replaced by W. Gould Brokaw's coats. Brokaw is a deuced

costume. And the fringe on them was perfectly lovely and matched Mr. Brokaw's complexion exquisitely.

Except for the last two days, the visitors would have been more comfortable in New York. Disgust set in so strongly on Thursday that many packed up and left and if they are possessed of the idea that the balminess of Florida is a hoax they scarcely can be blamed. They felt little of it while here. Generally speaking, it was damp, dreary and chilling. The thermometer was near to the freezing point most of the time and furs were necessary and much in evidence.

Anybody may obtain a fair idea of the conditions that prevailed by fancying betaking himself to a sea-swept beach at about 9.30 a. m., with the thermometer registering about 30 degrees and standing there until 11.15 before witnessing the first



1. The Surly Hemery after his Disqualification. 2. Weighing in. 3. Chiefly Mr. Brokaw's Coat. 4. The Christie Car, down and out, as usual. 5. The Timers at their Post.

"race," then waiting until 2 o'clock for the second event and finally after tarrying another hour, to hear the announcement, "There will be no further racing to-day." And the racing—pshaw! is it unfair to dignify the sport by such a term. There was nothing resembling a close finish nor was there a single thrill of excitement during the entire week. The nearest approach to enthusiasm was when H. L. Bowden proposed three cheers for Mr. Stanley, the builder of the solitary American car that figured in the carnival. A little group in front of the clubhouse cheered right heartily, a compliment which Mr. Stanley ac-

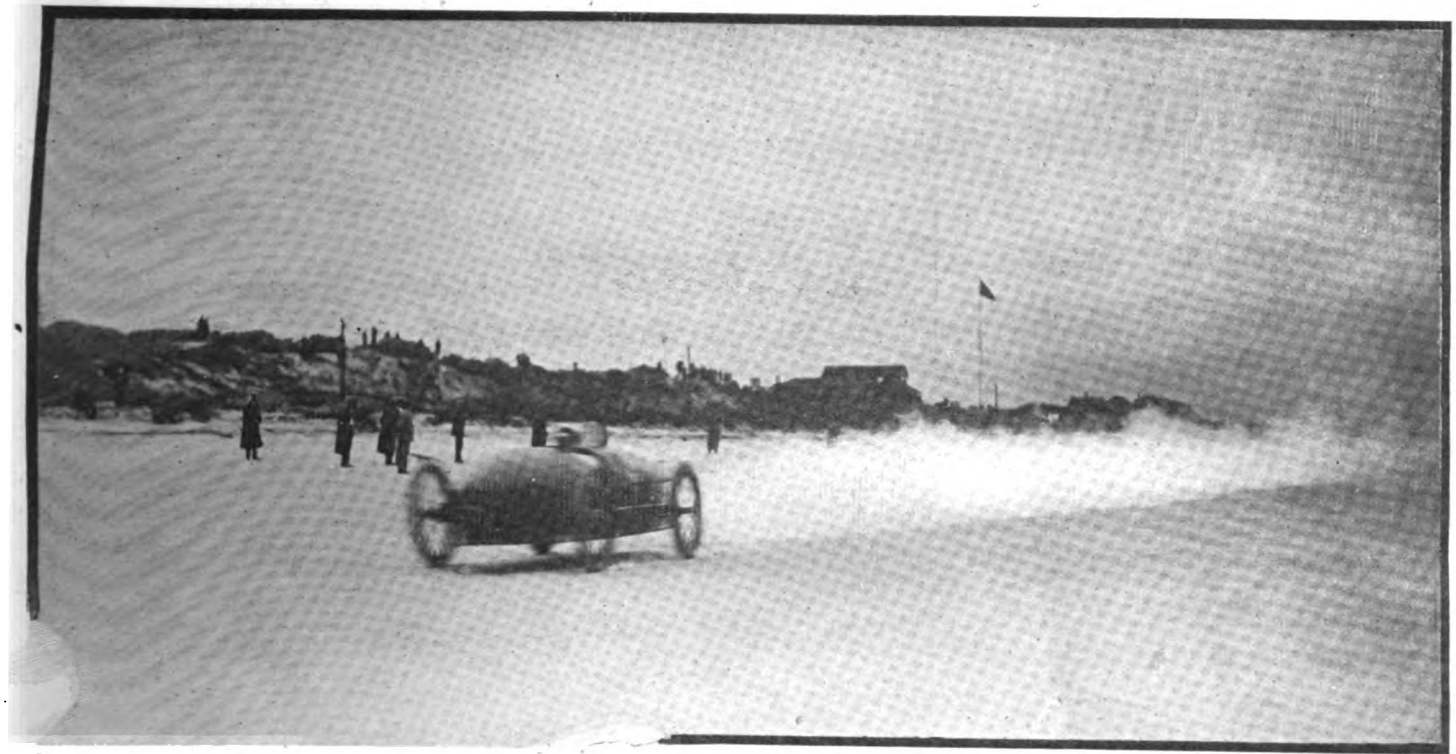
DEEP DISGUST ON THURSDAY.

Ormond, Florida, January 25.—Disgust of the remaining visitors who have been inviegled into "taking in" the Florida speed tournament to be in turn "taken in," about reached the limit of human endurance when the night ended to-day's fiasco.

It was rain! rain! nothing but R-A-I-N, until 2 o'clock this afternoon when the officials made a pitiable attempt to run off two events so the now thoroughly disgusted tourists might not become too disinterested to take their dollars away with them. But the two events that were disposed of did little to alleviate their "suffering," and

and down the strand, and all the big cars laid up in hospital tents were conditions not apt to stimulate any great amount of enthusiasm, so it is not surprising when, the rain finally having stopped and the officials announced the first race for 2 o'clock, that only a hundred or so had the temerity to leave the sheltering hotel verandas for the bleak stretch of coquina-shelled beach. That handful of spectators was heartily glad when the two events were over and they could get back for dinner.

The two events consisted of a ten-mile Corinthian handicap for amateurs and the one solitary event for American stock cars,



THE STANLEY "BEETLE" FLYING AT 127½ MILES PER HOUR.

knowledgeed with a smile and the remark, "We can do it in 27 seconds."

Off the beach the promoters of the carnival lost no opportunity to "turn a trick." The hotel-keepers were keenly alive to their opportunities and their Carnival Manager Morgan was not asleep. There was a moving picture show of automobile scenes given at the Daytona opera house and also one in the Ormond Hotel Casino. The guests of the hotel were "invited" by letter to attend. Price, 50 cents. A Daytona paper let it be known that "W. J. Morgan was behind the enterprise." To add to the quality of the carnival, the hotel also threw open its parlor to a trick bicyclist who, after performing his stunts, was permitted to pass his cap among the guests. Then, to cap the climax, at the so-called "grand ball," programme peddlers in evening dress were licensed to circulate and cry their wares. It induced some one to let fall a remark about "dropping a sausage on a page of poems."

many "pulled stakes" and it is doubtful if Ormond ever will see many of them again.

Alfred G. Vanderbilt did not surprise anyone when he and his private car slipped away yesterday; the "mastadon" is still here, and here it is likely to remain until Richard, its designer, takes it back to New York and discovers why it "didn't." Charley "Horse" Gates and Mrs. Gates, with their retinue of attendants, left for Palm Beach, and George W. Young, who paid a fancy price for the F. I. A. T. that has yet failed to distinguish itself, and his party of New Yorkers, also departed yesterday, while Henry Ford and James Couzens, of Detroit, were among the others who "betook themselves hence" to-day.

The weather was about as cheerless as one would care to experience and the spirits of the spectators were equally as depressed. A heavy north wind, with a light rain falling, a high tide that left little room on the beach for the few cars to romp up

neither of them being very interesting nor very representative. Three cars contested the "price handicap" at fifteen miles, which was won in runaway fashion by Frank Durbin in a Stanley steam car, his time being 13 minutes 42¾ seconds. J. E. Bristol, 30 horse-power Stoddard-Dayton, finished second in 17:11¾. The Stanley had 25 seconds and the other car 12 seconds handicap. A. L. Kull, in the 50 horse-power Wayne, from scratch, was doing well until one of its battery wires broke.

The amateur handicap was utterly devoid of interest. Picture three cars spread out over an area of miles and it can be seen why it was uninteresting. The first heat was taken by S. B. Stevens, the millionaire iron manufacturer, who handled one of the small Darracqs that formed a strand of Hemery's string until that disagreeable Frenchman was deposed, in 6:36¾. Almost a minute later finished J. R. Harding in a Mercedes. Nearly five minutes later than

that a little Maxwell runabout which Alfred Reeves, of New York, had entered "for the fun of the thing" and to keep up appearances, was driven across the wire. James L. Breese, who has been unfortunate in financing unknown and untried cars, was the only finisher in the second heat, his competitor, Charles B. Barron, having broken down. The final heat was an empty victory for Stevens. His time was 9:28. Thus endeth Thursday; praises be to Allah that it was no worse. The summaries:

Ten miles, Corinthian handicap for amateurs—First heat—S. B. Stevens, 80 h. p. Darracq, first; J. R. Harding, 90 h. p. Mercedes, second. Times, 6:36 $\frac{3}{4}$ and 7:32 $\frac{3}{4}$. Also ran—Alfred Reeves, 10 h. p. Maxwell, 12:51 $\frac{1}{4}$. Second heat—James L. Breese, 60 h. p. Mercedes, first. Time, 9:28. Charles W. Barron, 90 h. p. F. I. A. T., broke down. Final heat—S. B. Stevens, 80 h. p. Darracq, first; J. L. Breese, 60 h. p. Mercedes, second. Time, 9:28 and 9:47 $\frac{3}{4}$.

Fifteen miles, Price handicap for American stock touring cars—Frank Durbin, 20 h. p. Stanley steamer (0:25), first; J. E. Bristol, 30 h. p. Stoddard-Dayton (0:12), second; A. L. Kull, 50 h. p. Wayne (scratch), third. Times, 13:42 $\frac{3}{4}$ and 17:11 $\frac{3}{4}$. Kull broke down at finish.

FOUR WORLD'S RECORDS FRIDAY.

Ormond, Florida, Jan. 26.—Four world's records went by the boards to-day and each time Stanley's wonderful "beetle" and the double-engined Darracq figured in the "killing," the former setting up world's figures for one kilometer and one mile for steam cars and the latter the same distance for gasoline cars. The Stanley's times, however, eclipse those made by the foreign machine.

It was a good thing that fast going was the order of the day for many of the guests—those who had not already departed—had packed up and were ready to go. The remaining faithful are determined to "stick" to the finish. Marriott's wonderful flight occurred in the record trials. Clifford Earp, the English driver of the 100 horse-power Napier, was the first to essay the flight against time. He fell far short of the mark, however, the timers giving 37 $\frac{3}{4}$ seconds for the mile. Next came Louis Chevrolet, at the wheel of the big Darracq; he thundered down the beach in 30 $\frac{3}{4}$ seconds, a new record for gasoline cars and 3 $\frac{3}{4}$ seconds better than the previous best. None of the other gasoline cars came within speaking distance of Chevrolet's figures. Then Fred Marriott, the Yankee in the American built car that has carried everything before it, tried for the mile. In striking contrast to the big foreign machine, the "Beetle" flew noiselessly to the tape, flashed across it and then like the big bug it suggests as if seeking to escape from some bigger monster of the air, it flew, flashed, darted, swept, swooped down the smooth mile stretch of sand, traveling faster than wheeled vehicle ever traveled before, in the once incomprehensible time of 28 $\frac{1}{2}$ seconds, a world's record for any form of locomotion. It averages 127 $\frac{1}{2}$ miles to the hour.

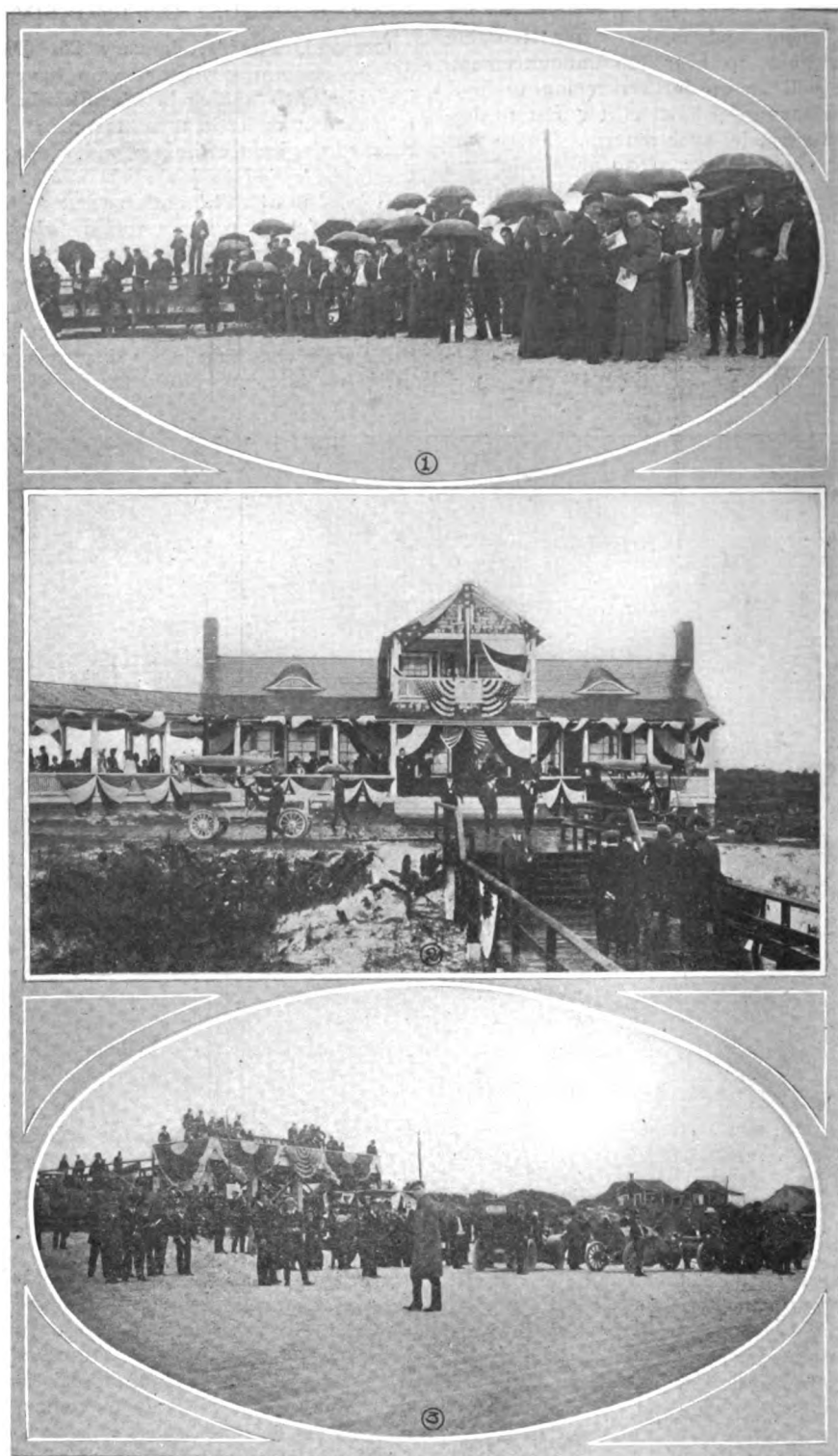
F. E. Stanley, the inventor of the marvellous speed creation, was standing on the

beach nervously fingering a stop watch when Marriott made his wonderful flight against time, and when somebody proposed "three cheers for the designer of the car that had saved his country from disgrace," they were given right heartily. Mr. Stanley was visibly embarrassed.

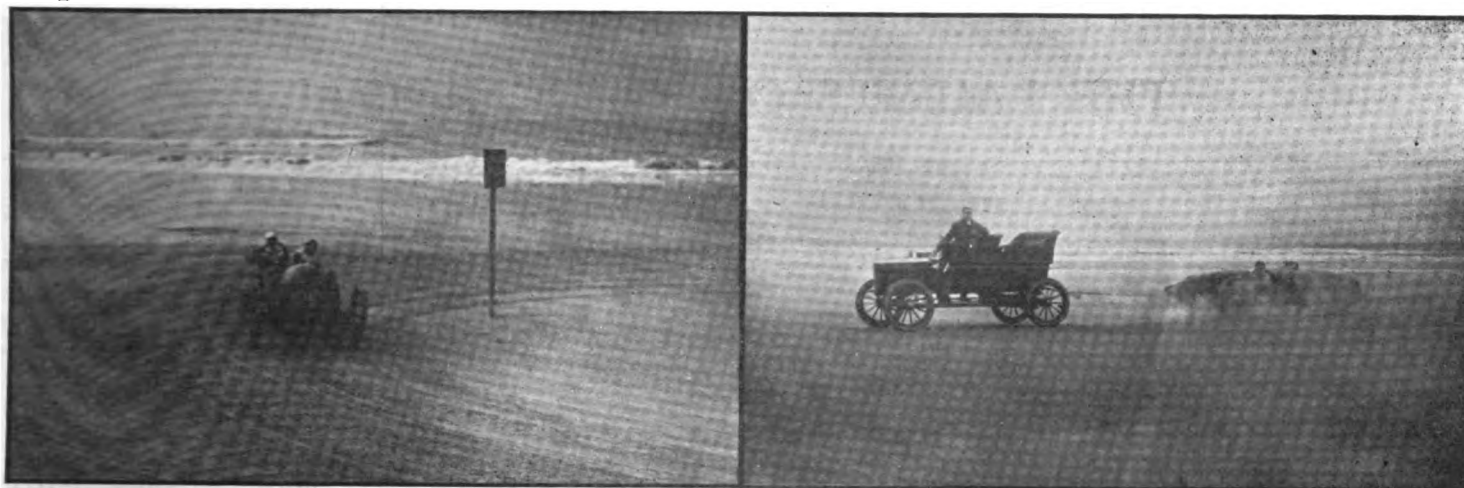
In the kilometer trials Marriott's performance was equally remarkable. He covered the distance, 625-1000 of a mile in

18 $\frac{3}{4}$ seconds, or at the rate of 123 $\frac{1}{2}$ miles an hour. Chevrolet, in the Darracq, made the next best time, 19 $\frac{3}{4}$ seconds, which is a new record for gasoline cars. Truly, it was a great day for records, but little else.

The weather was rather raw and damp, and the tide and rain washed the beach was not as smooth as it might be. The wind neither hindered nor assisted the contestants. The start of the races was delayed until one



1. WHEN THE BLOOMIN' RAIN WAS GENTLY FALLING.
2. THE CLUBHOUSE.
3. AT THE STARTING POINT.



EARP ROUNDING THE POST ON THREE TIRES.

TOWING OFF THE TEMPORARILY DISABLED "BEETLE."

o'clock, owing to the inability of the timers to get the apparatus set in position. The record trials were run off with quick dispatch. Preceding these, two uninteresting ten mile events were run. The ten mile Corinthian Handicap was won by J. R. Harding (English Daimler), who was given the generous time allowance of 3 minutes 30 seconds. That the handicappers were wide of the mark was evident, for Harding led by over a mile at the finish. James L. Breeze, in a 60 horse-power Mercedes, finished second, having an allowance of three minutes. Alfred Reeves, 10 horse-power Maxwell, with 6 minutes, was third. Charles Barron, in a Fiat, failed to finish. Harding's actual time was 8:48, while the second car to finish covered the ten miles in 6:42½. Guy Vaughn and Emmanuel Cedrino were the only contestants for the middle-weight championship. Vaughn, who heretofore has driven Decauville cars with success, handled one of the light Darracqs and finished nearly one minute ahead of the Italian driver and car. The day's summary follows:

KILOMETER RECORD TRIALS.

(Steam Cars.)

Fred Marriott, 30 h. p. Stanley.....0:18½

(Light-weight Gasolene Cars.)

Charles Fleming, 10 h. p. Maxwell.....0:59

(Middle-weight Gasolene Cars.)

S. B. Stevens, 80 h. p. Darracq.....0:25

Dan Wurgis, 32 h. p. Reo.....0:34½

"Deacon" Holmes, 50 h. p. Wayne.....0:41½

(Heavy-weight Gasolene Cars.)

Louis Chevrolet, 200 h. p. Darracq.....0:19½

Clifford Earp, 100 h. p. Napier.....0:21½

Em. Cedrino, 110 h. p. F. I. A. T.....0:22½

Frank Kulick, 100 h. p. Ford.....0:24½

ONE MILE RECORD TRIALS.

(Steam Cars.)

Fred Marriott, 30 h. p. Stanley.....0:28½

(Heavy-weight Gasolene Cars.)

Louis Chevrolet, 200 h. p. Darracq.....0:30½

Em. Cedrino, 110 h. p. F. I. A. T.....0:36½

Clifford Earp, 100 h. p. Napier.....0:37½

Frank Kulick, 100 h. p. Ford.....0:40

(Middle-weight Gasolene Cars.)

Guy Vaughn, 80 h. p. Darracq.....0:40½

Dan Wurgis, 32 h. p. Reo.....0:52½

"Deacon" Holmes, 50 h. p. Wayne.....1:06

(Light-weight Gasolene Cars.)

Charles Fleming, 10 h. p. Maxwell.....1:25½

Ten miles, middle-weight championship—Guy Vaughn, 60 h. p. Darracq, first; Emmanuel Cedrino,

24 h. p. F. I. A. T., second. Times, 7:00 and 7:50.

Ten miles, Corinthian handicap—J. R. Harding, 45 h. p. English Daimler (3:30), first; S. B. Stevens, 80 h. p. Darracq (scratch), second; James L. Breeze, 60 h. p. Mercedes (3:00), third; Alfred Reeves, 10 h. p. Maxwell (6:00) fourth; Charles W. Barron, 90 h. p. F. I. A. T., failed to finish. Actual times, 8:48½, 6:42½ and 10:50½.

EARP'S JOY; MINNEAPOLIS'S GLOOM

Ormond, Florida, January 27.—On four wheels and three tires, Walter Clifford-Earp, the English gentleman-amateur, won the 100 mile race here this afternoon. The odds were such as would have caused a driver of less persevering and less daring to give up long before the finish. Earp's right rear wheel shed its tire before the fortieth mile, but instead of giving up the ghost then and there or stopping to repair the tire, the doughty Englishman stuck to it when sticking to it seemed vain, and not

only completed the remaining sixty miles, but, as stated, winning out and incidentally setting up a new record for the distance of 1 hour 15 minutes 40 seconds. The former record, 1:18:14, was made last year.

It was a disappointed trainload of Minneapolis and St. Paul people that pulled out of here at 3 o'clock this afternoon. The "Twin Cities" sent South a special train of three cars, a dining car and a buffet, filled with those who had contributed largely to the \$2,000 Minneapolis trophy, and they remained over to see the 100 mile race for which it was offered. The Westerners arrived Thursday morning and were immediately driven over to the beach to see the "sport." They waited a long time—so long that they had reason to thank their stars that they brought their furs with them. The Florida weather was not so very much unlike the Minnesota brand they had left behind. The party lived aboard the train, which was due to return on Friday. They fought off the railroad officials for a day, for they did want to see run the race for their trophy, which had been delayed a day by mismanagement somewhere. But they had their long journey for naught. The railroad people hauled off their train at 3 o'clock to-day, just before the race for the Minneapolis trophy was run.

For the first time since the carnival started the sun condescended to shine. The race was scheduled to start at 1:30 p. m., but as usual, the timing apparatus failed in its mission and over an hour elapsed before it could be made to work. When it was believed to be in working order, "two miles a minute" time trials were started. Demegeot, who has been Hemery's mecanicien for the past few years, was at the wheel and essayed the trial, but alas! the timing apparatus failed to register. Then Marriott in the "beetle," tried and blew out a cylinder head. After that it was decided to postpone the races until Monday.

The starters in the 100-mile race for the Minneapolis trophy were Louis Chevrolet, 120 h. p. Christie; Walter Clifford-Earp, 100 h. p. Napier; Emanuel Cedrino, 110 h. p. Fiat; Vincenzo Lancia, 110 h. p. Fiat; J. H.



Jack" Prince and his old Six-Day Rival, W. J. ("Senator") Morgan, now Manager of the Carnival. (Photo was taken some years before Morgan denounced cash prizes.)

THE LAURELS OF THE CARNIVAL

World's Records Established

Date.	Distance.	Driver.	Machine.	Old Record.	New Record.	Miles Per Hour.
Jan. 26—One kilometre, gasolene cars.....	Louis Chevrolet.....	200 h. p. Darracq.....	0:24½	0:18½	122.2	
Jan. 26—One mile, steam cars.....	Fred Marriott.....	30 h. p. Stanley.....	0:21½	0:19½	115.9	
Jan. 26—One mile, gasolene cars.....	Louis Chevrolet.....	200 h. p. Darracq.....	0:38	0:28½	127.6	
Jan. 29—Two miles, steam cars.....	Fred Mariott.....	30 h. p. Stanley.....	0:34½	0:30½	117.6	
Jan. 29—Two miles, gasolene cars.....	V. Demogeot.....	200 h. p. Darracq.....	None	0:59½	120.8	
Jan. 26—One kilometre, steam cars.....	Fred Marriott.....	30 h. p. Stanley.....	None	0:58½	122.4	
Jan. 24—Five miles, gasolene cars.....	W. Clifford Earp.....	100 h. p. Napier.....	3:17	2:56	102.2	
Jan 29—Fifteen miles, gasolene cars.....	V. Lancia.....	110 h. p. F. I. A. T.....	None	10:00	90.0	
Jan. 27—One hundred miles, gasolene cars	W. Clifford Earp.....	100 h. p. Napier.....	1:18:24	1:15:40½	79.3	

The Victors

Date.	Race.	Winner.	Machine.	Time.	Average Per Mile.	Miles Per Hour.
Jan. 23—One mile, Dewar Cup.....	Fred Marriott.....	30 h. p. Stanley steamer....	0:33	0:33	109.0	
Jan. 23—One mile, heavyweight champ.....	V. Lancia.....	110 h. p. F. I. A. T.....	0:37	0:37	95.7	
Jan. 23—One mile, steam championship.....	Fred Marriott.....	30 h. p. Stanley steamer....	0:31 $\frac{1}{2}$	0:31 $\frac{1}{2}$	113.2	
Jan. 24—Five mile, open championship.....	V. Lancia.....	110 h. p. F. I. A. T.....	3:01 $\frac{1}{2}$	0:36 $\frac{1}{2}$	99.5	
Jan. 24—Five mile, heavyweight champ.....	Clifford Earp.....	100 h. p. Napier.....	2:56	0:35 $\frac{1}{2}$	102.2	
Jan. 24—Five mile, middleweight champ.....	E. Cedrino.....	24 h. p. F. I. A. T.....	3:53 $\frac{1}{2}$	0:46 $\frac{1}{2}$	76.9	
Jan. 25—Ten mile, Corinthian Handicap.....	S. B. Stevens.....	80 h. p. Darracq.....	9:28	0:56 $\frac{1}{2}$	63.5	
Jan. 25—Fifteen mile, Stock Car Handicap	Frank Durbin.....	20 h. p. Stanley steamer....	13:42 $\frac{1}{2}$	0:54 $\frac{1}{2}$	65.7	
Jan. 26—Ten mile, middleweight champ.....	Guy Vaughn.....	80 h. p. Darracq.....	7:00	0:42	85.6	
Jan. 26—Ten mile, Corinthian Handicap.....	J. R. Harding.....	45 h. p. English Daimler...	8:48 $\frac{1}{2}$	0:52 $\frac{1}{2}$	68.2	
Jan. 26—One kilometre, gas heavyweight.....	Louis Chevrolet.....	200 h. p. Darracq.....	0:19 $\frac{1}{2}$	0:31	115.9	
Jan. 26—One kilometre, gas middleweight.....	Guy Vaughn.....	80 h. p. Darracq.....	0:25	0:40	90.0	
Jan. 26—One kilometre, gas lightweight.....	Charles Fleming.....	10 h. p. Maxwell.....	0:59	1:34 $\frac{1}{2}$	38.1	
Jan. 26—One kilometre, steam.....	Fred Marriott.....	30 h. p. Stanley steamer....	0:18 $\frac{1}{2}$	0:29 $\frac{1}{2}$	122.2	
Jan. 26—One mile, gas heavyweight.....	Louis Chevrolet.....	200 h. p. Darracq.....	0:30 $\frac{1}{2}$	0:30 $\frac{1}{2}$	117.6	
Jan. 26—One mile, gas middleweight.....	Guy Vaughn.....	80 h. p. Darracq.....	0:40 $\frac{1}{2}$	0:40 $\frac{1}{2}$	88.7	
Jan. 26—One mile, gas lightweight.....	Charles Fleming.....	10 h. p. Maxwell.....	1:25 $\frac{1}{2}$	1:25 $\frac{1}{2}$	42.2	
Jan. 26—One mile, steam.....	Fred Marriott.....	30 h. p. Stanley steamer....	0:28 $\frac{1}{2}$	0:28 $\frac{1}{2}$	127.6	
Jan. 27—One hun'd. mile, Minneapolistrophy	Clifford Earp.....	100 h. p. Napier.....	1:15:40 $\frac{1}{2}$	0:45 $\frac{1}{2}$	79.3	
Jan. 29—Fifteen mile, open championship.....	V. Lancia.....	110 h. p. F. I. A. T.....	10:00	0:40	90.0	
Jan. 29—Ten mile, open championship.....	V. Lancia.....	110 h. p. F. I. A. T.....	6:19 $\frac{1}{2}$	0:38	94.9	
Jan. 29—Ten mile, open handicap.....	V. Lancia.....	110 h. p. F. I. A. T.....	6:18 $\frac{1}{2}$	0:37 $\frac{1}{2}$	96.7	
Jan. 29—Thirty mile, American cars.....	Fred Marriott.....	30 h. p. Stanley steamer....	34:18 $\frac{1}{2}$	0:36 $\frac{1}{2}$	54.3	
Jan. 29—Two mile, gas, record trials.....	V. Demogeot.....	200 h. p. Darracq.....	0:58 $\frac{1}{2}$	0:29 $\frac{1}{2}$	122.4	
Jan. 29—Two mile, steam record trials.....	Fred Marriott.....	30 h. p. Stanley steamer....	0:59 $\frac{1}{2}$	0:29 $\frac{1}{2}$	120.8	
Jan. 29—One mile, middleweight champ.....	Guy Vaughn.....	80 h. p. Darracq.....	—	—	—	

Harding, 45 h. p. English Daimler and Wm. H. Hilliard, 90 h. p. Napier. They started thirty seconds apart in this order. The course afforded a straightaway stretch of fifteen miles with seven turns. Earp took the lead at the start and at the 10-mile post, in front of the club house, had a fair

One hundred miles, for Minneapolis \$2,000 trophy—Walter Clifford-Earp, 100 h. p. Napier, first; Em. Cedrino, 110 h. p. F. I. A. T., second; Wm. L. Hilliard, 60 h. p. Napier, third. Also ran—H. Harding, 45 h. p. Daimler. Also started—Vincenzo Lancia, 110 h. p. F. I. A. T.; Louis Chevrolet, 120 h. p. Christie. Times, 1:15:40 $\frac{3}{4}$, 1:16:32, and 1:21:05. Order at start (thirty seconds separating cars)—Chevrolet, Earp, Cedrino, Lancia,

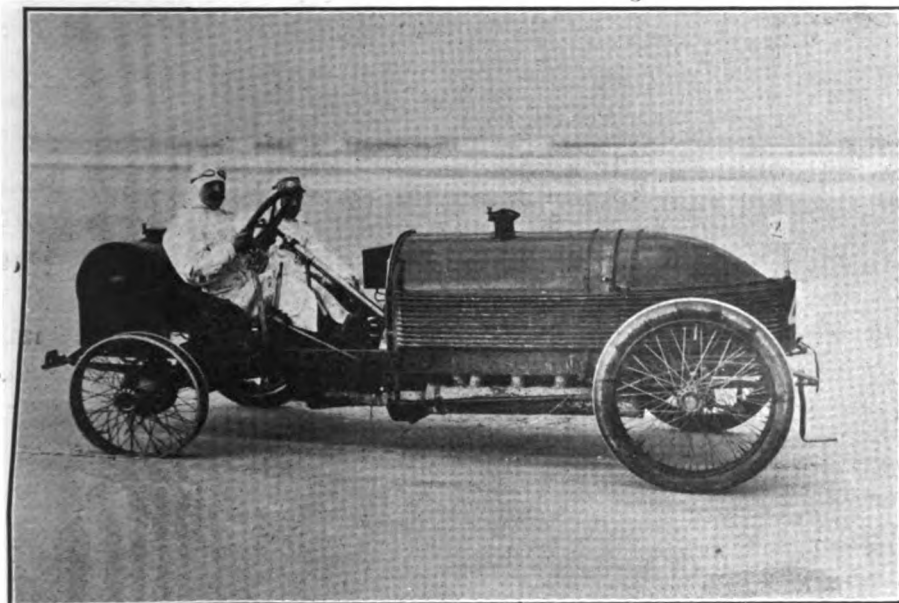
and the mechanics are working like beavers to get them in readiness for the morrow. One of the sensational—though it finally turned out to be rather amusing—features was the protest of F. E. Stanley, owner and builder of the steam car that comparatively has been wiping up the beach with all the other cars, against the 200 horse-power Darracq, on the grounds that it has no differential as required by the A. A. A. racing rules. Stanley based his protest on the action of Lancia, Cedrino and Earp yesterday when they protested against the 80 horse-power Darracq entered for the 100-mile race by S. B. Stevens, who purchased the entire string of Darracqs after Hemery was "set down." It was claimed that the French car had no differential and when Mr. Stevens learned of the protest he withdrew the car.

Stanley's protest was made verbally to Referee Robt. Lee Morrell, but when told it would have to be put in writing and that it would cost him \$10 to "see," he hastily concluded to "pass."

The protests bring up an interesting point inasmuch as the 80 horse-power Darracq is the same car that won the last Vanderbilt cup race. If it violated the rules then—but what's the use of "ifing."

TWO MILES A MINUTE AT LAST.

Ormond, Florida, Jan. 29.—Two miles and more in one minute at last and made by an American car! This was the choice tidbit in the final development of the last day's meeting of the tournament. Although



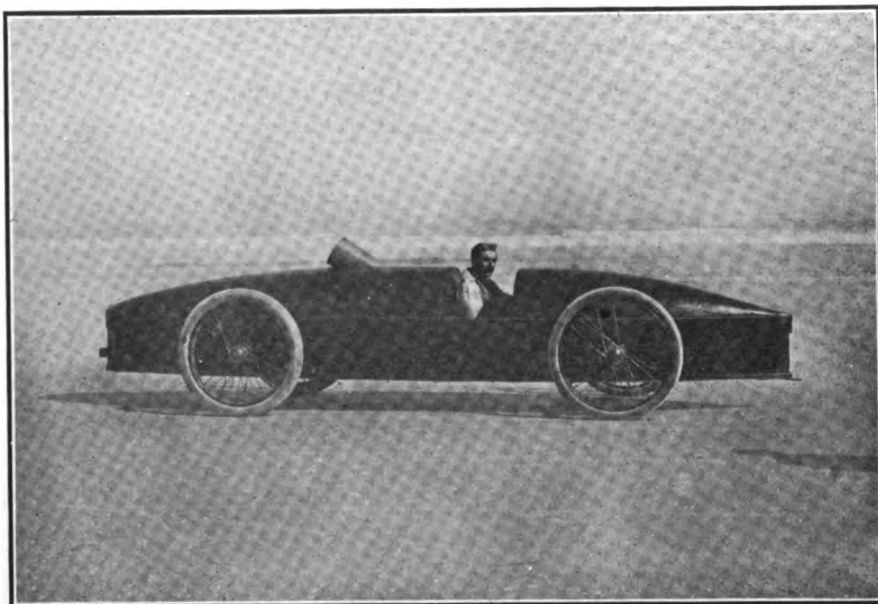
EARP AFTER WINNING THE HUNDRED MILE EVENT.

lead over the others. At 28 miles the English driver led Cedrino and Lancia by a little over a minute, while Hilliard was nearly six minutes behind.

Ten miles further Earp threw the shoe of his right rear tire and when he passed the grandstand, on three tires, traveling at 70 miles an hour, the small crowd cheered. At the 40-mile post Cedrino had taken the initiative with Lancia trailing nearly one second. At this point Earp was 6 minutes 35 seconds behind the leader and Hilliard 6 minutes 52 seconds in the rear. The jovial Lancia had the misfortune to break his radiator at 49 miles and dropped out of the contest. At 58 miles Cedrino was well in the lead, with Earp trailing, by 6:59, and Hilliard, 8:30. He led Earp at 70 miles by 11 minutes 2 seconds. At 75 miles Cedrino, however, dropped a tire, and not daring to continue on the rim, he, unlike the Englishman, stopped to replace it. It lost him the race. While he was re-shoeing, Earp went to the front and at 85 miles led Cedrino by 3:52; at 88 miles he was 5 minutes 33 seconds ahead of Hilliard, his team mate. Earp led across the finish line and 1 minute 29 seconds elapsed before Cedrino flashed by. Corrected time gives Earp the victory by 59 seconds, having done the century in 1 hour 15 minutes 40 $\frac{3}{4}$ seconds, a new record.

Chevrolet, who had charge of the ill-fated Christie car, dropped out of the running at sixty miles, his engine having missed fire from the beginning. Harding made a fairly creditable showing and he was in fourth place when he was called off. The summary:

Harding, Hilliard. At ten miles—Earp, Cedrino, Lancia, Chevrolet, Hilliard, Harding. At twenty-eight miles—Earp, Cedrino, Lancia, Hilliard, Chevrolet, Harding. At forty miles—Cedrino, Lancia, Earp, Hilliard, Harding, Chevrolet. At fifty-eight



THE BIGGEST LITTLE PEBBLE ON ANY BEACH.

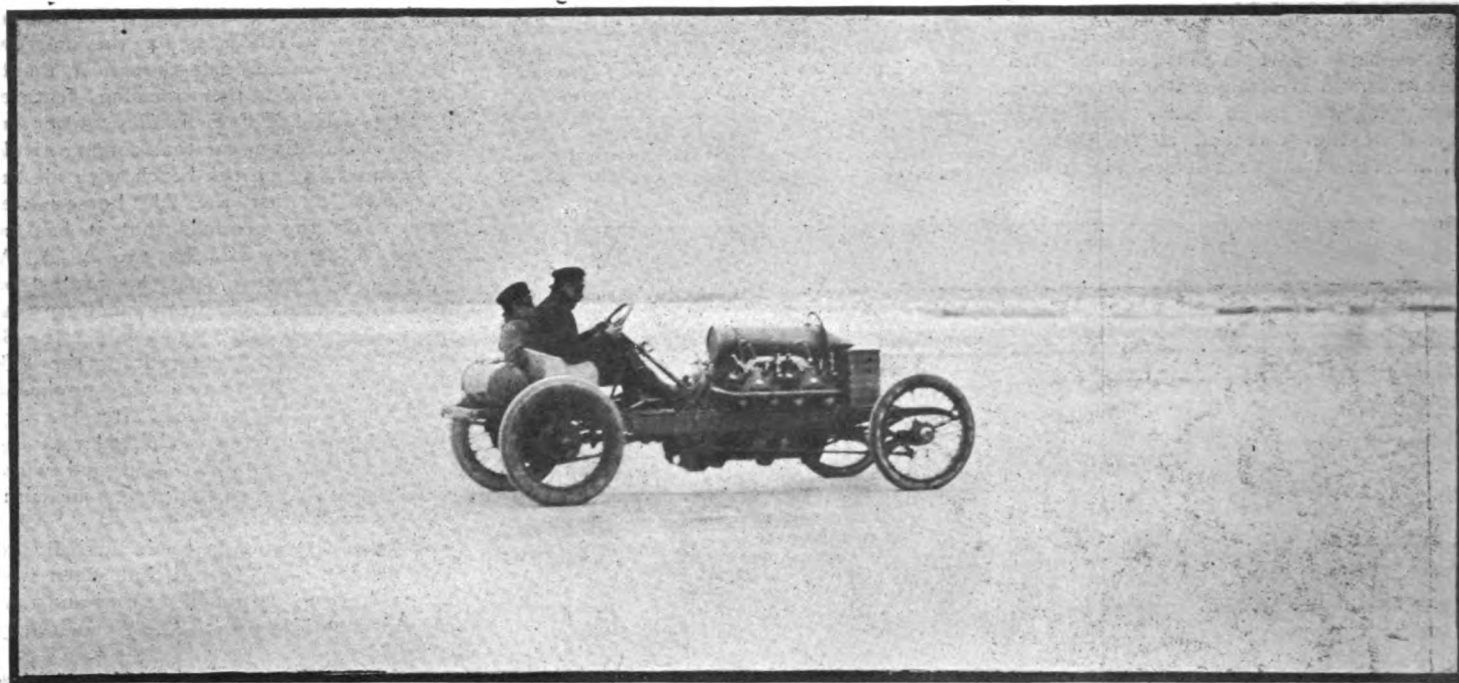
miles—Cedrino, Earp, Hilliard. Lancia, Chevrolet and Harding dropped out. At seventy miles—Cedrino, Earp, Hilliard. At eighty-eight miles—Earp, Cedrino, Hilliard.

STANLEY FILES SUNDAY PROTEST.

Ormond, Florida, Jan. 28.—This has been a day of rest insofar as racing is concerned. There are few cars that have not been crippled or that do not need tuning

not sensational in view of the fact that the Stanley steam car—this is the machine that did the trick—has been doing almost as good in every race it competed in, nevertheless it was a thrilling finale to a meeting that has produced more records and less sport than any that have gone before it.

Although the American car was first to obtain the honor, it was not, however, alone



DEMOGEOT IN FULL FLIGHT IN THE 200 H. P. DARRACQ.

in its glory, for the 200 horse power Darracq, which was brought over to do this very thing—2 miles in one minute—driven by a practically unknown driver, Demogeot, who up to this time had been playing the understudy to the fallen Hemery, accomplished even better time, going the two miles in 58½ seconds, while the record flight of the Stanley "beetle" just before was clocked at 59½ seconds.

Both performances were made at the close of the day and the close of the dismal and bedraggled carnival, and the beach was not at its best. A light breeze was blowing from the northwest, giving the cars a slight advantage. Only two cars—the Stanley and the Darracq—essayed the trial. The start was from the timer's stand at Daytona, with the finish two miles to the southward. The indomitable Marriott, in the "beetle" made the first onslaught. His time was three seconds over the minute, faster than any car had ever traveled that distance, but still not within the long sought goal. Then came the furious looking Frenchman, Demogeot. He seemed to be traveling faster than his predecessor, and almost instantly it was recorded that he had beat the steamer's time by 2½ seconds. As neither car had accomplished the mark aimed at, each was allowed another trial. Again the Stanley flashed over the starting line, and was instantaneously swallowed up in the wake of its own steam.

"Fifty-nine and three-fifths," yelled the timers in unison and a cheer—the second one of the carnival—went up. Then Herbert L. Bowden, the Boston millionaire, who drove a mile in 32½ seconds last year in a freak Mercedes, proposed three cheers for the car, its driver and maker. They were given willingly.

Scarcely had the echoes died away when the Darracq again thundered down the tide-

washed strand. Just past the starting line Demogeot's cap sailed up in the air, but car and driver were swallowed up in the mist before the headgear alighted. Demogeot's time for the two miles was 58½ seconds—a flight comparable with nothing earthly.

When the shouting was over and Demogeot returned to the judges stand, he was escorted to the platform, blushing like a schoolgirl all the while, to be crowned with a laurel or palm wreath, just as it was done in the days of Nero. This time, however, the "prettiest girl in Florida," a really good-looking little girl of fourteen summers, Mary Simrall, by name, did the crowning. After reciting her well-learned piece, dainty Miss Simrall placed the crown of glory on the head of the earstwhile mechanic, and presented him with the gold crown trophy as "speed king of the world."

Vincenzo Lancia carried off the other honors of the day, getting three firsts, which included two "championships." The 15-mile open championship brought together three foreign cars—two Fiats and a Napier, manned respectively by Lancia Cedrino and Hilliard. Cedrino led by a mile at the 7-mile post, when his car went down and out. Lancia won in ten minutes flat, Hilliard finishing 1 minute, 36½ seconds later. The 10-mile open championship and the 10-mile for heavyweight cars was run as one event. Lancia again scoring, and defeating Marriott in the Stanley, and Hilliard in the Napier. Lancia's time was 7:35½. This popular son of Italy and hero of the Vanderbilt Cup race, also won the 10-mile handicap, starting from scratch. Hilliard (Napier) scored second from the one-minute mark. The winner's time was 8:03½.

The programme culminated with the completion of the 30-mile for American cars and the one-mile middleweight champion-

ship. Marriott, in the Stanley, added one more victory to his long string by winning the former in 28 minutes 38½ seconds. The other competitors were the Christie, with Walter Christie up and the Ford, with Frank Kulick at the helm. The Christie stopped for water and finished second, three minutes late; the Ford ran into soft sand and was abandoned. The one mile middleweight championship proved such only in name; it was really a fizzle, foozle or some other such complimentary name. Guy Vaughn (Darracq), was the only starter, and the timing apparatus once more covered itself with glory by failing to work. The summaries:

Fifteen mile open championship—Vincenzo Lancia, 110 h. p. Fiat, first; William Hilliard, 60 h. p. Napier, second. Times, 0:10 and 0:11½. Also started—Em. Cedrino, 110 h. p. Fiat.

Ten mile open championship, including ten-mile race for heavy-weight cars—Vincenzo Lancia, 110 h. p. Fiat, first; Fred Marriott, 30 h. p. Stanley steamer, second; William R. Hilliard, 60 h. p. Napier, third. Times, 6:19½ and 7:35½.

Ten mile open handicap—Vincenzo Lancia, 110 h. p. Fiat (scratch), first; William R. Hilliard, 60 h. p. Napier (1:00), second. Times, 6:18½ and 8:03½. Also started—J. N. Harding, 45 h. p. English Daimler.

Thirty miles for American cars—Fred Marriott, 30 h. p. Stanley steamer, first; Walter Christie, 120 h. p. Christie, second. Times, 34:18½ and 37:24½. Also started—Frank Kulick, 100 h. p. Ford.

One mile middle-weight championship—Walkover for Guy Vaughn, 80 h. p. Darracq. Timing apparatus failed to work.

Two-miles-a-minute trials—Victor Demogeot, 200 h. p. Darracq. Times, 1:01½ and 0:58½; Fred Marriott, 30 h. p. Stanley. Times, 1:03 and 0:59½.

Batchelder to Leave A. A. A.

A. G. Batchelder, Secretary of the American Automobile Association, has been unable to resist the attractions of newspaper work, in which he spent most of his life, and is making ready to return to it. He is to become editor of the *Automobile*.

TWO TWO-CYCLE PATENTS UP

Detroit Lawyer Drags out the Second One
—How the Two Compare.

The two-cycle patent situation is becoming interesting. Following the sudden appearance of Joseph Day on the scene with a patent that has but short life left in it, another Richmond has walked on the field in the person of James Whittemore, a Detroit attorney, who also has a patent on a two-cycle three-port motor, which, however, does not expire until 1910. Like Day, he is issuing licenses, or is willing to do so. While they seem to be the owners of the rights neither Day nor Whittemore are the inventors of their respective motors.

Day's patent was issued to F. W. C. Cock, the English patent bearing date of October 15, 1892. Application for the United States patent was filed March 10, 1894, and United States patent No. 544,210 was granted to F. W. C. Cock on August 6, 1895, two claims being allowed.

Whittemore's patent was granted to Clark Sintz, of Springfield, Ohio, on November 21, 1893, the application having been filed on same on October 27, 1892. In his specification, Sintz states: "My invention relates to gas engines, and the object of my invention is to produce a gas engine in which high speeds may be attained and maintained. A further object is to provide means whereby an explosion may be secured at each piston stroke. A further object is to provide a novel arrangement of the supply and exhaust ports in connection with the piston, whereby a substantially valveless engine is secured." The Sintz engine is almost precisely like the Cock engine, and a search of the filewrapper shows an affidavit by Sintz that he had made an engine precisely like that shown in his drawings prior to May 1, 1892. The only difference between the two engines is that Cock uses separate gas and air ports to the crank case, while Sintz shows an air port only. This, it is said, does not affect the situation, as three-port engines employ but one crank case port.

The Day-Cock patent is as follows:

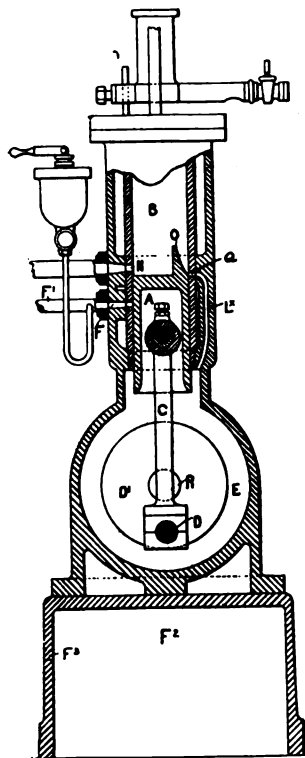
1. In a gas engine, the combination of a cylinder and a piston therein, the cylinder being divided by the piston into a combustion chamber and a compression chamber, and a passage connecting the two chambers, the said passage being opened and closed by the piston, with air and gas inlet ports opening into the compression chamber, the said ports being covered and uncovered by the piston itself, substantially as set forth.

2. In a gas engine, the combination of a cylinder, a compression chamber at one end thereof, a piston adapted to reciprocate within the cylinder and to compress the explosive mixture in the compression chamber during its downward or outward stroke, a port or passage leading from the compression chamber into the cylinder, its lower end being adapted to remain constantly open and its opposite end adapted to be closed by the piston from near the beginning of its inward stroke until said piston has nearly reached the limit of its outward stroke and to be opened when the piston is completing its outward stroke, air and gas inlet ports leading into the cylinder and adapted to be closed by the piston from near the beginning of its inward stroke until near the completion of its return or outward stroke, and an exhaust port communicating with the cylinder and adapted to be closed by the piston from

near the beginning of its inward stroke until near the end of the return or outward stroke and to be opened while said piston is terminating its outward stroke and during a portion of its inward stroke, all substantially as described for the purpose specified.

The Whittemore-Sintz patent embraces the following claims:

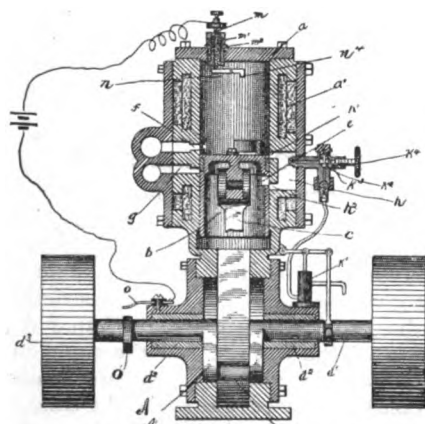
1. In a gas engine cylinder having supply and exhaust ports, and a moving piston in said cylinder



DAY-COCK ENGINE.

adapted to alternately open said supply and exhaust ports to opposite ends of said cylinder, and a communicating chamber, adapted, by the movement of said piston, to be opened simultaneously to the opposite ends of said cylinder, and thus form a communication from one end of the cylinder to the other, substantially as specified.

2. In a gas engine a cylinder having supply and exhaust ports arranged near the center thereof and approximate to each other, and a piston adapted to normally close both of said ports, said piston



SINTZ-WHITTEMORE ENGINE.

being adapted to uncover one of said ports and cause it to communicate with one end of the cylinder, as it approaches the limit of its movement in one direction, and to uncover the port and cause it to communicate with the opposite end of the cylinder, as it approaches the limit of its movement in the other direction, and a communicating chamber adapted to form a communication from one end of said cylinder to the other, as the piston reaches the limit of its movement in one direction, substantially as and for the purpose specified.

3. In a gas engine, a cylinder, a moving piston therein, supply and exhaust ports arranged on one

side of said cylinder, a chamber h, on the opposite side, a port h controlled by the piston communicating directly with the cylinder from said chamber, when the piston is at the limit of its downward stroke, an opening in the wall of the piston and a second port from said chamber h communicating with the opening in the wall of the piston when said piston is at the end of its downward stroke, whereby communication is made between the ends of the cylinder around the piston head, through the chamber h, substantially as described.

4. In a gas engine, the combination with the cylinder and the moving piston therein, of supply and exhaust ports arranged on one side of the cylinder, and the communicating chamber having ports on the opposite side of said cylinder, and an opening through the walls of said piston adapted to form a communication with said chamber, and thus establish a communication from one end of said cylinder to the other, the exhaust port being arranged slightly in advance of the port which opens through the cylinder to said communicating chamber, so that the exploding chamber is permitted to exhaust prior to the time the charge is admitted thereto, substantially as specified.

5. In a gas engine, an electric ignitor consisting essentially of an insulated electrode extending through the cylinder head, a rock-shaft arranged at right angles to said electrode extending through the cylinder walls and carrying on its inner end a rocking bar which is arranged within the cylinder and adapted to normally contact with the electrode, a projecting arm on said rock-shaft on the outside of said cylinder, and a spring extending from said arm to a stationary connection on the outside of said cylinder, so as to hold the rocking bar in contact with the electrode, and rocking bar being adapted to contact with the moving piston and break the contact with said electrode, substantially as specified.

6. In an explosive engine and in combination, a piston and a cylinder having a direct supply and an exhaust port both arranged to be closed by the piston on its upward or compression stroke and to be opened by the piston at the limit of its power or downward stroke, the said ports being opened and closed successively by the movement of the piston, substantially as described.

7. In an explosive engine and in combination, a piston and a cylinder, an exhaust port in said cylinder opened by the piston before the limit of its downward or power stroke, an indirect supply port opened by the piston at the limit of its power stroke and a direct supply port connected with the indirect supply port leading to the opposite end of the cylinder, the said piston being arranged to close the exhaust and indirect supply ports successively at the beginning of its upward or compression stroke and to open the direct supply port only at the limit of its downward or power stroke, all substantially as described.

8. In combination in an explosive engine, a cylinder having an exhaust port and a direct supply port arranged to be opened successively by the piston at the end of its down or power stroke, communication between the direct supply port and the opposite end of the cylinder, through an indirect supply port, and a piston having an opening arranged to form connections with the supply ports at the end of the power stroke, substantially as described.

9. In combination in an explosive engine, a cylinder having an exhaust port and direct supply port both arranged to be opened by the piston at the end of its down or power stroke, communication between the direct supply port in the cylinder below the limit of the upward or compression stroke, and a piston having an opening arranged to connect with the direct supply port at the end of the power stroke, said piston in its movements covering and uncovering all the ports substantially as described.

10. In combination in an explosive engine, a cylinder having an exhaust port and supply port leading to a chamber which is also in connection with the interior of the cylinder, and with the gas or other explosive supply, and an indirect supply port having connections with said chamber, and a piston arranged to open and close said ports and to draw and force the supply, substantially as described.

Olds Increases Its Capital.

At the annual meeting of the board of directors of the Olds Motor Works, Lansing, Mich., Monday of this week, it was voted to increase the capital stock from \$500,000 to \$612,000. The directors stated that they "had no kick coming," as the company last year trebled its business over the previous year and that already enough orders have been placed to double last year's business. Consequently it is announced that the Olds Gas Engine Works and the American Suction Gas Producer Co., two independent concerns, but whose stockholders are closely identified with the Olds Motor Works, have been combined and will be known as the Olds Gas Power Co.

HE HAD "SECRET SWITCHES"

**His Telephone Friend Devised Them—
Later the Repairman had things to Say.**

Pity the poor agent for his is a path beset with trials and tribulations. One of the New York fraternity who represents a prominent maker, recently disposed of a car to a customer who was more than pleased with its operation during the few days of his possession. But before a week had elapsed the agent received a hurry call over the telephone to send someone up to see what ailed the car. After a thorough overhauling of all possible sources of defection the trouble hunter finally decided the batteries were at fault and telephoned for new cells.

As the engine started off on the very first turn of the crank the moment the new installation was complete, the old cells were thrown in the nearest ash barrel and all concerned went on their way rejoicing. Before the repairer had returned to the salesroom there came another irate message from the same owner stating in terms more forceful than elegant that the car had run for just fifteen minutes and no amount of persuasion would make it move an inch. An emergency car was sent out to tow the derelict back and as soon as it arrived at the garage the star repairer crawled under it. What he found, after a few minutes' inspection of the wiring, caused him considerable surprise as well as an outburst of profanity.

The wiring had been cut and two snap switches which inform the uninitiated that they are "on" or "off," the type usually employed on incandescent wiring, had been inserted in series in the circuit. But the switches were not guilty of any wrongdoing; it was the manner of their installation. Where the main wiring had been attached to the terminals of the switches there was no fault to be found, but connecting the two was a single strand of 36 or 38 copper wire several inches long. Wire of this gauge is about as fine as a human hair and is within one or two degrees of the finest size available for practical purposes. It is very generally employed in what is known as "lamp cord" for hanging incandescent lamps and seldom less than 14 to 20 strands are used together, this being done for the purpose of flexibility. But a single strand of such wire presents such a high resistance to the passage of the electric current that the ordinary battery of six or eight volts usually gives no sign of life when tested through it. In consequence the car batteries might just as well not have been there after their first flush of life had been expended. Overcoming the resistance of the circuit soon lowered their voltage to such an extent that they were to all intents dead—only the elimination of what thus amounted to a gap could make them available.

"What in thunderation has all that messing with the wiring been done for and who did it?" but mildly expressed the sentiments of the agent conveyed to the owner.

The latter admitted that a "telephone friend" of his was guilty but that the idea was his. He was not going to have anyone running off with his car when left on the street, nor could anyone take it out without his knowledge. Not much. "Those were secret switches." There was no doubt about the secret of them for nothing short of a close inspection from beneath revealed them.

"Catching on" in Egypt.

That the use of the motor car in what are commonly considered out of the way corners of the earth is increasing, is well illustrated by the statement that in Egypt where there was only one car ten years ago, there are to-day one hundred and seventy machines, of which one hundred and ten are in Cairo, and fifty-six in Alexandria. Up to the present time, the French makers have placed the cars used there, though it is to be presumed that before long others will invade that tradition girt region. It is said that a movement is now on foot to construct a first-class highway between these two centres, with a series of well-built radiating roads as an adjunct, and it is thought that the completion of this enterprise will have a distinct bearing on the motor car market there.

About the Use of Steels.

A great deal of talk about nickel steel and chrome nickel steel was made during the show by would-be wisecracks. Occasionally the fact that they were stupidly using a catch phrase was exposed, as when a man demanded why frames were not made of nickel steel. They are not, because in a structure like a frame the nickel does not flux evenly with the steel under the rolling process, but segregates. Nickel steel is all right for certain parts and is being used by a number of makers. Chrome nickel steel is high priced and very expensive to work.

Alas! the "Snow Automobile."

While the industrious inventor is busying his brain in devising the "snow automobile" in one form or another, the probable field of usefulness of that sort of machine is yearly growing more and more restricted. According to the scientists, the rapid devastation of the forests, and the rapid increase of the more densely populated areas, has a constant tendency to make the climate less rigorous than formerly, and reduce the annual snow-fall.

Motor Stages for Montclair.

Montclair, N. J., is to have practically an automobile street railway. Stages are to be installed on streets which the trolley lines do not reach and will be run under 15 minutes headway, or oftener if the patronage justifies it. The fare to any part of the town will be ten cents.

RATES TO BE REDUCED

**Western Railways Finally Agree to do so—
Reduction will be Substantial.**

After much effort the automobile interests have secured a substantial reduction of freight rates in the Western country. The Western Classification meeting, which has been in session at Los Angeles, Cal., has reduced the rates from double first to first class on less car-load shipments of fly-wheels, sprockets, crank shafts, cylinder heads, chains, brake drums and shoes, springs, cylinders, connecting rods, axles and boilers. The new rates will become effective April 1st.

This is a reduction of 50 per cent. in the freight charges west of the Mississippi River on parts shipped for repairs. In the case of Pacific Coast points, such as San Francisco and Los Angeles, it reduces the through rates from the factories from \$6.00 to \$3.00 per 100 pounds. J. S. Marvin, of the A. L. A. M., represented the automobile interests at the meeting.

Tips that will Save Tires.

Air costs nothing—which tires do not—therefore never allow the weight of the car to rest on deflated tubes, even over night.

Avoid sudden application of the brakes—they hurt the tires more than is at first apparent.

Running a flat tire, for even a very short distance, is sure to be costly—to someone.

If one side of a tire shows more wear than the other, as sometimes occurs on front wheels—turn it around for a while.

Always keep greases and oils away from the tires—then tend to destroy the rubber.

Keep the rims in good order, free from dents and kinks, and always clear of rust. preserves the tires. Rust destroys white paint, when dry.

Always carry at least one extra tube when on the road—to save time when the inevitable occurs.

Remember that a nipple that fits the tire valve is almost as necessary as a pump when that time comes.

Remember, also, that a small jack is easier to manipulate than a section of a brick wall when you want to change inner tubes.

The best way to insure good results with your tires, is to buy good goods in the first place—and then take good care of them.

How Cars Can Run Away.

"Don't start your car until you are in it," would seem to be a superfluous bit of advice, but a man in Orange, N. J., proved otherwise. He had a small car and threw the gear changing lever to first speed, intending to step in at the same time. His foot "mis-cued" and he sprawled on the ground, while the car ran off and broke its back trying to climb a tree.

FREYLINGHUYSEN IN FULL

Astounding Provisions Lurking in New Jersey Senator's Bill—Hearing Next Wednesday.

Examination of the Freylinghuysen bill itself, proves that the excerpts that were handed out last week but lightly sketched the viciousness of the measure. Mr. Freylinghuysen—Joseph S.—went the "whole hog" while he was about it. The gentleman who represents Somerset County in the New Jersey Senate is a resident of Raritan but, like so many other Jerseymen, he earns his living, or much of it, in New York, the residents of which he is so anxious to "shake down" for \$1 per day, when they use the roads of New Jersey. He maintains a law office in William Street in New York City.

His bill, on which a hearing will be held in the State House in Trenton, on Wednesday next, is that rank that after providing that the motorist shall be well "plucked," it sets up the Commissioner of Motor Vehicles as mightier than any court in the Commonwealth. It states that if a motorist's right to use his property is revoked by any magistrate or justice of the peace, only the commissioner can restore it, but he cannot do so within one year after such revocation, even though appeal to a higher court may prove the alleged offender to be not guilty.

Despite the extra tax which he will be required to pay, Mr. Freylinghuysen would also prohibit the motorist from using such devices as tire chains, or other anti-skid devices which add to his personal safety. Also, he must display the numbered tags above the level of the tires and, presumably, employ a boy to see that dust does not settle on them. Likewise must he not only stop on signal from horsemen, but he must reduce speed whenever he sees one. Before he reaches this stage, indeed when he applies for a license, and before it is granted, he must supply his photograph and the license will not be granted unless he proves that he has "knowledge of such mechanisms as is necessary to insure safe operation of the vehicle."

If a dealer wants a license he must not only do all of these things but his pocket first will be picked of \$50 for one general number, which may be used on as many as five vehicles.

If the bill becomes a law, the roads of New Jersey will be filled with "shoo-fly" inspectors, whose duty it will be to lay traps and hold up automobilists to see that they are carrying photographs of themselves, and that they are possessed of mechanical knowledge and that their cars agree with this knowledge.

This precious bill in full is as follows:

PART I.—DEFINITIONS.

1. As used in this act:
- (1) The term "motor vehicle" includes all vehicles propelled otherwise than by muscular power, excepting such vehicles as run only upon rails or tracks.
- (2) The term "motor cycle" includes such motor vehicles as run only upon two wheels and those making a single track.
- (3) The term "automobile" includes all motor vehicles excepting motor cycles.
- (4) The word "magistrate" shall be deemed and understood to mean and include all justices of the peace, judges of the city criminal courts, police justices, recorders, mayors, and all other officers having the power of committing a magistrate.
- (5) Automobile fire engines and such self propelling vehicles as are used neither for the conveyance of passengers nor for the transportation of freight, such as steam road rollers, are excepted from the provisions of this act.

PART II.—THE CONSTRUCTION AND EQUIPMENT OF MOTOR VEHICLES.

3. Every motor vehicle must be dirigible and its steering apparatus must be so constructed as to insure a reliable working of the apparatus under all circumstances. Motor vehicles whose weight ex-

"Putting the Screws to it."



THE FREYLINGHUYSEN IDEA.

ceeds seven hundred and fifty pounds must be provided with a reverse wheel.

4. All levers and handles of the mechanism must be so arranged that the driver of the vehicle can manipulate them without danger of confounding them and without taking his eyes off the road.

5. Every motor vehicle must be equipped with a plainly audible signal trumpet.

6. (1) Every automobile shall carry, during the period from one hour after sunset to one hour before sunrise, and whenever fog renders it impossible to see a long distance, at least two lighted lamps, showing white lights, visible at least two hundred and fifty feet in the direction towards which said automobile is proceeding, and shall also exhibit one red light visible in the reverse direction. Upon the fronts of the two aforesaid lamps showing white lights shall be displayed, in such manner as to be plainly visible when such lamps are lighted, the number of the registration certificate issued as in this act provided, the same to be in Arabic numerals, not less than one inch in height.

- (2) Every motor cycle shall carry, during the period from one hour after sunset to one hour before sunrise, and whenever fog renders it impossible to see a long distance, at least one lighted lamp, showing a white light, visible at least two hundred feet in the direction toward which the motor cycle is proceeding.

- (3) Within the limits of any city of the first or second class, the streets of which are illuminated by artificial light, no high power search light (in addition to the lamp lights required by this section) shall be displayed on any motor vehicle.

7. Automobiles shall be provided with at least two brakes, powerful in action and separated from each other, of which one brake must act directly on the drive wheels or on parts of the mechanism which are firmly connected with the wheels. Each of the two brakes must suffice alone to stop the carriage within a proper time. One of the two brakes must be so arranged as to be operated with the foot; provided, however, that on automobiles not exceeding eight horse-power one brake will be sufficient.

- For motor cycles a brake operated by hand is sufficient.

8. No motor vehicle tire shall be fitted with a chain or other metal grip device when used upon macadam or other made roads, except upon asphalt, cobble, Belgian block or vitrified brick pavements.

9. Every motor vehicle must have devices to pre-

vent excessive noise, annoying smoke and the escape of gas and steam, as well as the falling out of embers or residue from the fuel.

PART III.—DEPARTMENT OF MOTOR VEHICLE REGISTRATION AND REGULATION.

10. The Secretary of State shall forthwith organize in connection with the Department of State, the Department of Motor Vehicle Regulation and Registration. He shall provide suitable quarters for the same and shall furnish all necessary supplies and equipment for the proper enforcement of the provisions of this act. He shall approve all bills for disbursement of money under any of the provisions of this act, which shall be paid by the State Treasurer, upon the warrant of the Comptroller out of any appropriation regularly made therefor.

11. The Assistant Secretary of State shall be ex-officio commissioner of motor vehicles, and shall have personal charge and supervision of the enforcement of the provisions of this act. The Secretary of State shall appoint a chief inspector of motor vehicles, who shall be chief clerk of the department, and who shall have practical knowledge of the mechanical arrangement and capabilities of all kinds of motor vehicles and be capable to pass upon the efficiency of motor vehicles and the competency of motor vehicle drivers. The Secretary of State shall also appoint as many inspectors as may be necessary in detecting violations of this act, in obtaining evidence of violations and otherwise assisting in the enforcement of the act. He shall also provide the clerical assistance necessary to carry into effect the provisions of this act. He shall fix the compensation of all inspectors, clerical assistants and others employed under this act. The compensation of the commissioner of motor vehicles shall be fifteen hundred dollars per annum, in addition to any compensation he may receive by reason of any statute fixing the compensation of Assistant Secretary of State, and that of the chief inspector shall be fifteen hundred dollars per annum.

12. The commissioner of motor vehicles shall be authorized and full power and authority are hereby given to him to designate the chief of police and the lawful deputy of said chief of police of any municipality in this State, or any other proper person to be the agent of the said commissioner of motor vehicles, for the registering of motor vehicles and issuing registration certificates, and for the examining of applicants for licenses to drive motor vehicles, and the granting of licenses to said applicants, subject to the requirements of this act and to such rules and regulations as shall be imposed by the commissioner; or any chief of police and deputy who may be so designated, are hereby authorized and required to act accordingly and until the said authority so to act is revoked by the said commissioner. There shall be a fee of fifty cents allowed such agent for every registration certificate so issued by him and for every license so granted by him, the same to be retained from the registration fee or the license fee paid to him; provided, however, that every registration and registration certificate and every license to drive motor vehicles shall be subject to revocation by the said commissioner of motor vehicles at his discretion, and if a driver of motor vehicles shall have had his license revoked, a new license granted to him within one year thereafter shall be void and of no effect unless it shall be granted by the said commissioner of motor vehicles in person; and if the registration or registration certificate of any motor vehicle shall have been revoked, a new registration made or new registration certificate issued within one year thereafter shall be void and of no effect unless the new regulation shall be made and the new certificate issued under the personal direction of the commissioner of motor vehicles.

13. The commissioner of motor vehicles shall be authorized and full power and authority are hereby given to him to license at his discretion, and upon payment of the lawful fee, any proper person of the age of eighteen years or over to be a motor vehicle driver, said commissioner having first examined said person and being satisfied of his ability as an operator, which examination shall include a test of the knowledge of said person of such portions of the mechanism of motor vehicles as is necessary in order to insure the safe operation of a vehicle of the kinds or kinds indicated by the applicant, and the said applicant having practically demonstrated his ability, by means of a trial trip, to conduct a vehicle of the class designated, and the said commissioner of motor vehicles may in his discretion refuse to grant a license to drive motor vehicles to any person who shall, in the estimation of said commissioner be an improper person to be granted such a license, and the said commissioner shall have power to grant a registration certificate to the owner of any motor vehicle, application for registration having properly been made and the fee therefor paid, and the vehicle being of a type that complies with the requirements of this act. But it shall be lawful for the said commissioner of motor vehicles to refuse registration to any vehicle that in his estimation is not a proper vehicle to be used upon public roads and highways of the State.

14. The commissioner of motor vehicles shall have such powers and duties as are in this act given and imposed, and shall collect such data with respect to the proper restrictions to be laid upon motor vehicles and the use thereof upon the public roads, turnpikes and thoroughfares, as shall seem to be for the public good, and under the direction of the Secretary of State shall report to each Legislature the operations of his office for the year ending on the next preceding thirty-first day of December. It

shall be his duty to attend to the enforcement of the provisions of this act.

15. The commissioner of motor vehicles shall keep a record of all his official acts, and shall preserve copies of all decisions, rules and orders made by him, and shall adopt an official seal. Copies of any act, rule, order or decision made by him, and of any paper or papers filed in his office, may be authenticated under said seal, and when so authenticated shall be evidence equally with and in like manner as the originals.

16. Motor vehicle inspectors may be appointed as provided in section eleven of this act and shall be presented with a badge indicative of their office, and when wearing such badge on the left breast of the outermost garment shall have power to stop any motor vehicle and examine the same to see that it complies with the requirements of this act, whether in matter of equipment, identification or otherwise; to require the production of the license of the driver; to arrest, without warrant, for violations of this act, and generally to act as special officers for the enforcement of the provisions of this act and for the detection and arrest of those who violate or infringe upon the provisions hereof.

PART IV.—THE OPERATION OF MOTOR VEHICLES.

17. No person shall own or drive a motor vehicle the owner of which vehicle shall not have complied with the provisions of this act concerning the proper registration and identification of the same; nor shall any person own or drive a motor vehicle which shall display on the front or back thereof a fictitious number or a number other than that designated for such motor vehicle in the registration certificate of such motor vehicle.

18. Every resident of this State who is the owner of a motor vehicle, and every non-resident owner whose motor vehicle shall be driven in this State, shall annually file in the office of the commissioner of motor vehicles, or with the lawful agent of said commissioner, a statement in writing containing the name and address of such owner, together with a brief description of the character of such motor vehicle, including the name of the maker and the manufacturer's number of the motor vehicle, if number there be, and the rated horse power of the motor vehicle, and shall pay annually to the commissioner of motor vehicles, or his lawful agent, a registration fee of fifty cents per horse power for each motor vehicle; and if a motor vehicle have two ratings of horse power, the registration fee shall be based upon the highest rating; no registration fee, however, shall be less than two dollars for each motor vehicle. The commissioner of motor vehicles shall issue for each motor vehicle so registered a certificate properly numbered, stating that such motor vehicle is registered in accordance with this section, and shall cause the name of such owner, with his address, the number of his certificate and the description of such motor vehicle or motor vehicles to be entered in alphabetical order of the owner's names in a book to be kept for that purpose; provided, however, that the commissioner of motor vehicles may refuse registration in the case of any motor vehicle that shall not comply with the requirements of this act or that shall seem to him unsuitable for use on the public roads of this State; and provided further, that no registration certificate shall bear a number containing more than four figures; if the numbers expressed by four figures shall have been exhausted, then the enumeration shall begin anew, consecutively from 1, and have prefixed thereto a letter of the alphabet, commencing with A. Upon any and every transfer of a registered motor vehicle by the owner thereof in whose name the same is registered, the said registration and certificate thereof shall forthwith be and become void; but the same may be validated by the endorsement of the commissioner of motor vehicles, the purchaser having made written application therefor and paid a transfer fee of one dollar. Every registration shall expire and the certificate thereof become void at the expiration of one year from the date thereof, subject to renewal by the commissioner of motor vehicles upon the filing of the proper statement and the payment of the registration fee by the owner of the motor vehicle.

(2) There shall be a special short-period registration to be called the "Tourist Special." The preliminary written statement in this instance shall be similar to that required by paragraph one of this section, and shall designate the period for which the registration is desired. Along with the filing of said statement shall be paid the registration fee, which shall be one dollar for each day of the period for which registration shall be made; except that no such registration fee shall be less than two dollars, and that the period from Saturday to the next following Monday shall be counted two days. The certificate issued in this instance shall be plainly marked "Tourist Special," and shall clearly specify the first and last days of the period for which registration shall have been made; with the certificate shall be issued two number tags, made of strong white paper or cardboard, and upon each tag, followed by the letter "S," shall be imprinted the number of the said certificate, in separate Arabic numerals, not less than four inches in height, the strokes to be in width not less than one-half an inch, and upon the line below the numerals shall be plainly marked the first day and the last day of the period for which registration shall have been made; and the said tags shall be affixed, and during the period of the registration maintained, by the owner of the motor vehicle, one upon the front of the vehicle and one upon the back thereof, in accordance with the provisions of section twenty-one of this act, and shall constitute the only letters or numerals there displayed.

(3) Every manufacturer of or dealer in motor vehicles, instead of registering each motor vehicle owned or controlled by him, may make application, as hereinbefore provided in this section, for a registration number, and the written statement, in addition to the matters hereinbefore contained, shall state that he is a manufacturer or dealer, as the case may be, and that he desires to use a single number for all machines owned or controlled by him; and thereupon the commissioner of motor vehicles, if satisfied of the facts stated in said application, shall issue a certificate, as hereinbefore set forth, assigning the same a number as hereinbefore set forth, which certificate shall contain the statement that the same is issued to the applicant as a manufacturer or dealer, as the case may be, and that one certificate shall cover and be valid for all motor vehicles owned or controlled by such manufacturer or dealer until sold or let for hire, or loaned for a period of not more than five successive days. All such motor vehicles shall be regarded as registered under such general number; provided, and if, in addition to the registration number displayed on the front and back of the car, as hereinbefore provided, there shall be added the letter "M," of equal size and prominence; and provided further, that not more than five motor vehicles owned or controlled by the same manufacturer or dealer in motor vehicles shall be in operation at the same time under the same number. The fee for every such manufacturer's or dealer's certificate shall be fifty dollars.

(4) No registration or registration certificate made or issued under any former act shall be valid after July first, nineteen hundred and six.

19. (1) No person shall hereafter drive a motor vehicle upon any public street, public road or turnpike, public park or parkway, or public driveway or public highway, in this State, unless licensed to do so in accordance with the provisions of this act, and unless he shall have upon his person the license to him granted. No person under the age of eighteen years of age shall be licensed to drive motor vehicles, nor shall any person be licensed to drive motor vehicles until he shall have passed a satisfactory examination as to his ability as an operator, which examination shall include a test of the knowledge on the part of said person of such portions of the mechanism of motor vehicles as is necessary in order to insure the safe operation of a vehicle of the kind or kinds indicated by the applicant, as well as a practical demonstration by means of a trial trip. Licenses and the fees therefor shall be rated according to the horse power of motor vehicles and shall be granted for the period of one year; and the license, for one year from the date thereof, shall entitle the licensee to drive any registered motor vehicle of the class for which it is granted, or of a class of a smaller horse power. Motor vehicles of a horse power not exceeding one horse power shall be rated Class 1, and in like manner the class of every motor vehicle shall be determined by the number of horse power of the vehicle, and the annual fee for a license to drive any motor vehicle shall be computed at the rate of twenty-five cents per horse power of that vehicle; provided, however, that the minimum annual fee for a license to drive a motor shall be one dollar; and if a motor vehicle shall have two ratings of horse power, the license fee shall be based upon the highest rating. Every applicant for a license to drive a motor vehicle must furnish the examiner with a photograph of a size for attaching to the license, which photograph must be an accurate likeness of said applicant.

(2) (1) Each license to drive a motor vehicle shall specify the maximum horse power of the vehicle allowed to be driven thereunder, and shall declare that the licensee has represented himself to be eighteen years of age or over, and that the licensee has passed a satisfactory examination as to his knowledge of the mechanism of motor vehicles, and has, by a trial trip, practically demonstrated his ability to operate a motor vehicle of the horse power specified, and shall have firmly attached thereon a photograph of the licensee (furnished by the licensee, as hereinbefore provided), which photograph must be an accurate likeness of the said licensee.

(2) The license granted to drivers of motor vehicles shall be of such form as to leave thereon a blank space of suitable proportions for the making of memoranda thereon by magistrates before whom the holder of the license shall be charged and found guilty of violating any of the provisions of this act, and it shall be the duty of a magistrate, when he passed judgment or sentence upon any person found guilty of violating any of the provisions of this act, to demand from such person his license to drive motor vehicles and to inscribe in the blank space aforesaid, in short form, the date of the entry, the nature of the violation, the judgment or sentence of the court, together with the name of the county in which the magistrate sits, which memorandum shall be signed by the magistrate, and a memorandum of a violation against this act so set forth in brief form, signed by the magistrate, shall be prima facie evidence in any subsequent proceedings of the violation so noted; and any driver of a motor vehicle who shall have been arrested, and shall fail or refuse to produce his license before the magistrate by whom the matter shall be heard, shall be committed to the county jail and there imprisoned until he shall produce his aforesaid license, or satisfactory reasons be adduced before the magistrate for the non-production of said license.

PART V.—IDENTIFICATION MARKS OF MOTOR VEHICLES.

21. (1) The owner of each and every automobile which shall be driven upon the public streets, public roads, turnpikes, parks, public parkways, public

driveways or public highways in this State shall have the number of the registration certificate, issued as in this act provided, upon both the front and back of every such automobile, in a conspicuous place, above the level of the tire in the back, and above the level of the tire and below the hood in front, kept clear and distinct, and clean of grease, dust or other blurring matter, so as to be plainly visible at all times during daylight; such numbers to be separate Arabic numerals, and not less than four inches in height, the strokes to be in width not less than one-half an inch, and there shall not be placed upon the front or rear of said vehicle any other numbers, and when the number of the registration certificate shall include a letter or letters, such letter or letters are to be not less than four inches in height, and the strokes to be not less than one-half an inch in width.

(2) The owner of each and every motor cycle which shall be driven upon the public street, public roads, turnpikes, parks, public parkways, public driveways or public highways in this State shall have the number of the registration certificate issued as in this act provided, in a conspicuous place on the said motor cycle, and the said numerals shall be kept clear and distinct, and clean of grease, dust or other blurring matter, so as to be plainly visible at all times during the daylight; such numbers to be separate Arabic numerals and not less than three inches in height and the strokes to be in width not less than one-third of an inch; and when the number of the registration certificate shall include a letter or letters, such letter or letters are to be of the same proportions as the numerals.

PART VI.—USE OF ROADS AND HIGHWAYS.

(22) Drivers of motor vehicles whether of burden or of pleasure, using any of the turnpikes or public roads in this State, when met by another motor vehicle, or by a carriage, sleigh or sled, shall keep to the right, and when overtaken by another motor vehicle, carriage, sleigh or sled, they shall likewise keep to the right, so as in both cases to permit such motor vehicle, carriage, sleigh or sled, either met or overtaken, to pass uninterrupted.

(2) No owner, or purchaser, or driver of a motor vehicle who shall have complied with the requirements and provisions of this act shall be required to obtain any other license or permit to use or operate the same, nor shall such owner or purchaser or driver be excluded or prohibited from or limited in the free use thereof, nor limited as to speed upon any public street, avenue, road, turnpike, driveway, parkway or other public place, at any time, when the same is or may hereafter be opened to the use of persons having or using other carriages, nor be required to comply with other provisions or conditions as to the use of said motor vehicle, except as in this act provided; provided, however, that nothing in this section contained shall be construed to apply to or include any speedway created and maintained in pursuance of an act of the Legislature of the State of New Jersey entitled "An act to provide for the construction and maintenance of speedways in the counties of this State," approved March nineteenth, one thousand nine hundred and two; nor to any parks or parkways created and maintained in accordance with an act of the Legislature of the State of New Jersey entitled "An act to establish public parks in the counties of this State and to provide for the acquirement, improvement and regulation of the same," approved March twentieth, one thousand nine hundred and one. No city, town, township, borough or other municipality shall have power to make any ordinance, by-law or resolution limiting or restricting the use of speed of motor vehicles, and no ordinance, by-law or resolution heretofore or hereafter made by any city, town, township, borough or other municipal or local authority by whatever name known or designated in respect to or limiting the use or speed of motor vehicles shall have any force, effect or validity.

(3) No person shall drive a motor vehicle upon any public street, public highway, public road, public parkway, turnpike or public driveway in this State in a race or on a bet or wager.

PART VII. PROVISIONS CONCERNING SAFETY OF TRAFFIC.

23. The following rates of speed may be maintained, but shall not be exceeded, upon any public street, public road or turnpike, public park or parkway, or public driveway, or public highway, in this State by any one driving a motor vehicle:

(1) A speed of one mile in seven minutes upon the sharp curves of a street or highway, and at the junction of intersection of prominent cross-roads where such street, road or highway passes through the open country. The term "open country" meaning where houses are an average more than one hundred feet apart.

(2) A speed of one mile in seven minutes where such street or highway passes through the built-up portion of a city, town, township, borough or village where the houses are an average less than one hundred feet apart.

(3) A speed of one mile in seven minutes within two hundred feet of any horse or other beast of draught or burden upon the same street or highway.

(4) Elsewhere, and except as otherwise provided in subdivisions one, two and three of this section a speed of one mile in three minutes; provided, however, that nothing in this section contained shall permit any person to drive a motor vehicle at any speed greater than is reasonable, having regard to the traffic and use of highways, or so as to endanger the life or limb or to injure the property of any person; and it is further provided, that nothing

in this section contained shall affect the right of any person injured, either in his person or property, by the negligent operation of any motor vehicle, to sue and recover damages as heretofore; and provided, further, that the foregoing provisions concerning the speed of motor vehicles shall not apply to any speedway built and maintained for the exclusive use of motor vehicles if the said speedway at no point crosses any public street, avenue, road, turnpike, driveway, or other public thoroughfare, or any railroad or railway at grade, the said speedway having been constructed with the permission of the commissioners or the board of freeholders as the case may be, of the county or counties in which said speedway shall be located, and provided further, that every person driving a motor vehicle shall, at request or upon signal by putting up the hand or otherwise from a person riding or driving a horse or horses in the opposite direction, cause the motor vehicle to stop and remain stationary so long as may be necessary to allow said horse or horses to pass.

24. If a physician shall have his motor vehicle stopped for exceeding the speed limit while he is in the act of responding to an emergency call, the registration number of the vehicle and the driver's license number may be inspected and noted, and the physician shall then be allowed to proceed in the vehicle to his destination and subsequently such proceedings may be taken as would have been proper had the person violating the provisions as to speed not been a physician.

25. Motor vehicles belonging to the military establishment, while in use for official purposes, are exempt from the provisions of this act pertaining to speed.

PART VIII. PROCEEDINGS.

26. (1) A complaint having been made in writing and duly verified, that any person has violated any of the provisions of this act, any magistrate of the county in which the offense is committed may, within three months after the commission of said offense, issue a warrant directed to any constable, police officer, motor vehicle inspector or the commissioner of motor vehicles of this State, for the arrest of the person so charged; and the magistrate shall state what section or provision of this act has been violated by the defendant, and the time and place of said violation, and upon the return of said warrant the said magistrate shall proceed in a summary way to hear and determine the guilt or innocence of such person, and, upon conviction, shall impose upon the person so convicted by this act prescribed, together with the costs of prosecution for such offense. If any person shall fail to pay the penalty or penalties so imposed, together with the costs of prosecution, the said magistrate shall commit him to the county jail of the county where such conviction is had, for a period not exceeding ninety days, or until said penalty and costs are paid.

(2) Such magistrate, upon receiving complaint in writing, duly verified, of the violation of any provision of this act by any corporation, is hereby authorized and required to issue a summons directed to any constable, police officer, inspector of motor vehicles, or the commissioner of motor vehicles, of this State, requiring such corporation to be and appear before said magistrate on a day therein named, to answer the said complaint, which said summons shall be served on the president, vice-president, secretary, superintendent or manager of such corporation, at least five days before the time of appearance mentioned therein, and thereafter all proceedings shall be the same as against individuals, except where a different procedure is provided by this act.

27. Any hearing to be held pursuant to this act may, for good cause shown, be adjourned for a period of not exceeding thirty days from the return of any warrant, from the time of appearance mentioned in any summons, or from the date of any arrest without warrant, as the case may be, but in such case it shall be the duty of the magistrate to detain the defendant in safe custody, unless he shall enter into a bond to the State of New Jersey, with at least one sufficient surety, in an amount not exceeding five hundred dollars, conditioned for his appearance on the day to which the hearing may be adjourned, and thence from day to day, until the case is disposed of, and then to abide by the judgment of the magistrate, provided no appeal therefrom be taken; and such bond if forfeited may be prosecuted by a commissioner of vehicles in any court of competent jurisdiction.

28. The defendant in any proceedings instituted under this act, may appeal from the judgment or sentence of the magistrate to the Court of Common Pleas of the county in which such proceedings shall have taken place, provided the said defendant shall, within ten days after the date of said judgment, pay the costs of such proceedings and deliver to the magistrate a bond to the State of New Jersey, of such amount as the magistrate shall direct, not exceeding the amount of five hundred dollars, with at least one sufficient surety, conditioned to stand to and abide by such further order or judgment as may thereafter be made against the other party; and provided further, that if the said magistrate shall have imposed a sentence of imprisonment, the defendant shall be imprisoned forthwith upon the imposing of said sentence; but that an appeal properly taken in accordance with the provisions of this act shall be a stay upon the further enforcement of the sentence of imprisonment.

29. Whenever an appeal shall be taken as aforesaid, it shall be the duty of the magistrate to send all papers, together with a transcript of the proceedings in the case, to the next court of Common Pleas of the said county, which court shall, in a summary way, try and determine all such appeals.

30. Proceedings under this act may be instituted on any day of the week, and the institution of such proceedings on Sunday shall be no bar to the successful prosecution of the same; and any process served on Sunday shall be as valid as if served on any other day of the week.

31. (1) All proceedings for the violation of the provisions of this act shall be entitled and shall run in the name of the State of New Jersey, with the commissioner of motor vehicles or a motor vehicle inspector, or a police officer, or a constable, or such other person as shall by complaint institute the proceedings as prosecutor; and any magistrate may, at his discretion, refuse to issue a warrant on the complaint of any person other than the commissioner of motor vehicles or a motor vehicle inspector, until a sufficient bond to secure costs shall have been executed and delivered to the said magistrate.

(2) The same fees shall be allowed the magistrate and officers in proceedings under this act as are allowed for like services in the small cause court, and shall be paid by the defendant, if the defendant be found guilty of the charge laid against him. If the defendant be found not guilty of the charge or charges laid against him, then the costs must be paid by the prosecutor; except that when in such instances the commissioner of motor vehicles, or any motor vehicle inspector, shall have been the prosecutor, then the costs laid on the prosecutor shall be paid by the commissioner of motor vehicles from the moneys coming into his hands in accordance with the provisions of this act.

32. (1) Any constable, or police officer, or motor vehicle inspector or the commissioner of motor vehicles is hereby authorized to arrest without warrant any person violating any of the provisions of this act, and to bring the defendant before any magistrate of the county where such offense is committed. The person so offending shall be detained in the office of the magistrate until the officer making such arrest shall make oath or affirmation, which he shall do forthwith, declaring that the person under arrest has violated one or more of the provisions of this act, and specifying the provision or provisions violated, whereupon said magistrate shall issue a warrant returnable forthwith, and the said magistrate shall proceed summarily to hear or postpone the case as provided in sections twenty-six and twenty-seven of this act.

(2) Any constable, or police officer, or motor vehicle inspector, or the commissioner of motor vehicles is hereby authorized to stop on signal any person driving a motor vehicle and require of him the production of his license to drive motor vehicles, and such person shall forthwith produce his license for inspection; and if any person driving a motor vehicle shall, upon such a demand, fail or refuse to produce his license, he shall be forthwith arrested by said officer without a warrant and taken before a magistrate and charged with the offense of driving a motor vehicle without a license; provided, however, the said officer shall forthwith, and upon the request of the person so stopped, exhibit his official badge as evidence of his appointment and authority.

33. A warrant issued by any magistrate in accordance with the provisions of this act, shall be valid throughout the State, and any officer who has power to serve the said warrant and make arrest thereon in the county where the same shall have been issued, shall have like power to serve said warrant and make arrest thereon in any of the several counties of this State. If any person shall be arrested for a violation committed in a county other than that in which the arrest shall take place, the person so arrested may demand to be taken before a magistrate of the county in which the arrest may have been made for the purpose of making a cash deposit, or of entering into a recognizance with sufficient surety; whereupon the officer serving the said warrant shall take the person so apprehended before a magistrate of the county in which the arrest shall have been made, who shall thereupon fix a day for the matter to be heard before the magistrate issuing the said warrant, and shall take from the person apprehended a cash deposit, or recognizance to the State of New Jersey with sufficient surety or sureties for the appearance of the said person at the time and place designated in accordance with the provisions of section twenty-seven of this act; the cash deposit or recognizance so taken shall be returned to the magistrate issuing the warrant, to be retained and disposed of by him as by this act provided.

34. The same fees shall be allowed the magistrate and officers making an arrest in proceedings under this act as are allowed for like services in the court of small causes; and shall be paid by the defendant if the defendant be found guilty of the charge laid against him. If the defendant be found not guilty of the charge or charges laid against him, then the costs must be paid by the prosecutor, except that when in such instances the commissioner of motor vehicles, or any motor vehicle inspector, shall have been the prosecutor, then the costs laid upon the prosecutor shall be paid by the commissioner of motor vehicles from the moneys remaining in his hands from the payment of registration fees, license fees and otherwise.

PART IX. PUNISHMENTS AND PENALTIES.

35. Any person who shall be convicted of violating any of the provisions of this act shall be subject to a fine of not more than five hundred dollars, or to imprisonment in the county jail for a period of not exceeding sixty days.

36. It shall be lawful for a magistrate before whom any hearing under this act shall be had, to revoke the license of any person to drive motor vehicles; said revocation to be set aside from and in addition to any other penalty provided by this

act; and from the said revocation by the said magistrate an appeal shall lie to the commissioner of motor vehicles, and to him only; and the validity of said revocation shall in no wise depend upon the outcome of the appeal of the Court of Common Pleas provided in section twenty-eight of this act.

PART X. MISCELLANEOUS.

37. Moneys received in accordance with the provisions of this act, whether from fines, penalties, registration fees, license fees or otherwise shall be accounted for and forwarded to the commissioner of motor vehicles, and by him paid over to the Treasurer of the State of New Jersey as a fund for the repair of macadamized country roads throughout the State, and by the said Treasurer to be apportioned once each year among the several counties of this State according to the mileage of macadamized county roads in each county, the share apportioned each county to be used for the repair of macadamized county roads in that county under the direction of the board of chosen freeholders or the commissioners of that county, as the case may be, and to be paid in the same manner as State funds are paid for the improvement of public roads under the act entitled "An act to provide for the permanent improvement of public roads in this State"; provided, however, that in each instance, as the said moneys are collected and forwarded to the commissioner of motor vehicles, or by him paid over to the State Treasurer, such deductions may be made and amounts withheld as are authorized by the provisions of this act.

38. The commissioner of motor vehicles shall be authorized and full power and authority are hereby given to him to have erected at such points throughout the State as to him shall seem necessary, cautionary warnings of dangerous crossings, steep declivities, or other irregularities or perils of the roadway; at a cost, however, not to exceed in the aggregate, five thousand dollars.

39. This act shall take effect immediately, but nothing in the act shall hold any motor vehicle or driver subject to its provisions before July first next, and every motor vehicle registered under an act entitled "An act defining motor vehicles and providing for the registration of the same and uniform rules regulating the speed thereof," approved March twenty-third, nineteen hundred and three, and supplements thereto, shall be subject to the provisions of that act until that time.

40. All acts and parts of acts contrary to and inconsistent herewith are hereby repealed.

Jackson Wants 20-Mile Gears.

Senator Jackson, of Middlesex County, evidently is envious of the notoriety achieved by Senator Freylinghuysen of Somerset; and rear; arrests without warrants and pro-on Monday last introduced a little automobile bill of his own into the New Jersey legislature.

It is apparently the same measure that former Governor Murphy was so anxious to have passed last year, making it unlawful for automobiles having a speed greater than twenty miles an hour, to use the public roads. It will be remembered that Mr. Murphy's son has invented some sort of governor to keep cars within the limit. Senator Jackson's measure limits the age of drivers to eighteen years of age or over; limits the weight of machines loaded to 20,000 pounds; limits speed to twenty miles an hour; limits the tread to sixty-two inches and the body to seven feet in width; provides for lights at night, numbers in front or rear; arrests without warrants and provides for fines and imprisonments. In fact, it is almost identical with the law now in force.

The bill was framed by three organizations—the State Board of Agriculture, the State Board of Horticulture and the State Highway Protective Association.

In Massachusetts, one of the brilliant legislators is evidently anxious that motor vehicles be made public nuisances. He has introduced a bill requiring that all of them be provided with bells, which shall be sounded automatically at every revolution of the wheels.

L'HOMMEDIEU'S LITTLE BILL

There's \$2 More in it than appeared on the Surface—Its Full Text.

While the bill which Senator L'Homedieu introduced into the New York legislature was supposed to levy a tax only on the horse-power of the motor, examination of the measure itself proves that the Senator has so arranged it that the State will be able to shake \$2 more out of the pockets of the unfortunates who own cars. Mr. L'Homedieu calls it a "filing fee." The bill, which stands a chance of passage and which the Senator seems cocksure will be approved by the Governor, is quite interesting in its phraseology. It follows:

Section 1. Subdivision one of section two of chapter five hundred and thirty-eight of the laws of nineteen hundred and four, entitled "An act in relation to the registration and identification of motor vehicles and the use of the public highways by such vehicles," is hereby amended to read as follows:

Subdivision 1. Filing statement.—Every person hereafter acquiring a motor vehicle taxable under this act shall, for every vehicle owned by him, file in the office of the secretary of state a statement of his name and address, with a brief description of the vehicle to be registered, including the name of the maker, factory number, style of vehicle, the number of horse power and the motive power, on a blank to be prepared and furnished by such secretary for that purpose; the filing fee shall be two dollars. Every person owning a motor vehicle, who has not filed a statement in pursuance of this section in which the number of horse power of such vehicle is specified shall, on or before June first, nineteen hundred and five, file in the office of the secretary of state a supplemental statement of the name of such owner, the registered number of his motor vehicle, and the horse power thereof.

Section 2. Such act is hereby amended by adding to the following new sections to be numbered sections nine, ten, eleven, twelve, thirteen, fourteen, and fifteen, respectively, to read as follows:

Section 9. State tax on motor vehicles.—An annual state tax of one dollar per horse power is hereby imposed upon every motor vehicle except motorcycles owned by a resident of this state except a motor vehicle owned by the manufacturer thereof, or by one whose principal business is that of a dealer in motor vehicles, but this exception shall not apply to a motor vehicle in the usual personal use of such manufacturer or dealer; nor shall the tax be imposed on motor vehicles constructed, owned and used for the transportation of goods, wares or merchandise. The tax shall accrue and be based upon the ownership of such vehicle on June first of each year. In case of the acquiring of the title of a motor vehicle after June first of any year, other than one upon which the tax has been paid, the tax shall accrue with such title and be paid pro rata for the remainder of the year. In computing such tax the fraction of a horse power equal to one-half or more shall be deemed one full horse power. The filing of a statement of horse power of any vehicle registered with the secretary of state shall not preclude the secretary of state from determining the horse power of any vehicle subject to tax by the use of a dynamometer and assessing the tax in accordance with such test. The term owner as used in this section and the subsequent sections of this act includes a vendee having the possession of a motor vehicle under a contract of conditional sale, although the legal title to such motor vehicle remains in the vendor.

Section 10. Lien of tax and payment thereof.—The tax imposed by this act upon a motor vehicle, together with any unpaid interest thereon, shall become a lien upon such vehicle on the date of the accrual of such tax. Within thirty days after such tax accrues, the owner of each such vehicle shall transmit to the secretary of state the amount of such tax; and the secretary of state shall issue to such owner; a receipt thereof, specifying the name of the owner, the registration number of the vehicle on which the tax is paid, the horse power thereof and the amount of tax paid. If such tax is not paid within thirty days after the same accrues, the amount thereof shall bear interest at the rate of two per centum a month.

Section 11. Effect of failure to pay tax.—If such tax is not paid within thirty days after the same accrues as required by this act, the owner of such a motor vehicle, notwithstanding his registration under this act, shall forfeit all rights acquired thereby, and shall be subject to the same penalties and liabilities, civil and criminal, for operating such vehicle upon the public highways, as if such vehicle were not registered.

Section 12. Collection of tax.—If the tax imposed on a motor vehicle by this act is not paid when due,

the secretary of state may enforce its collection, with accrued interest, by an action against the owner thereof on the date when such tax accrued, in any court of competent jurisdiction; or he may issue his warrant under his hand and official seal, directed to the sheriff of any county of the state, commanding such sheriff to levy upon and sell the motor vehicle on which such tax and interest is a lien, if the same can be found within his county, for the payment of the amount of such tax, with accrued interest thereon and cost of executing the warrant, and to return such warrant to the secretary of state and pay to the state treasurer the money collected, by virtue thereof, at a time to be therein specified, not less than sixty days from the date of the warrant. The sheriff to whom any such warrant shall be directed shall proceed upon the same in all respects with like effect and in the same manner as prescribed by law in respect to execution issued against property upon judgments of a court of record, and shall be entitled to the same fees for his services in executing the warrant to be collected in the same manner.

Section 13. Exemptions from other taxation.—The taxes imposed by this act upon motor vehicles shall be in lieu of all other taxes, general or local, to which motor vehicles as personal property may be subject under the laws of this state; and the owner of such a vehicle in the assessment of a tax provided by this act shall not be entitled to any deduction for debts owned by him either on account of the purchase of such vehicle or otherwise.

Section 14. Payment of tax before registration of motor vehicles.—The secretary of state shall not hereafter register any motor vehicle pursuant to this act, unless at the time of filing the statement required by section two of this act, the owner of such vehicle shall have paid such tax for the then current year, but if the motor vehicle for the registration of which application is made was not owned by a resident of this state on the date fixed by this act for the accrual of taxes for the then current year, such owner shall only be required, in order to procure registration of such vehicle to pay a tax proportioned to the length of time between the date when such a motor vehicle was owned within the state, and the first day of June succeeding.

Section 15. Application of taxes.—Taxes collected in pursuance of this act shall be paid into the state treasury, and shall be expended under the direction of the state engineer and surveyor either for the construction or for the repair and maintenance of highways constructed under the provisions of chapter one hundred and fifteen of the laws of eighteen hundred and ninety-eight, and the acts amendatory thereof and supplementary thereto.

Section 3. This act shall take effect immediately.

Change in the Case of Rye.

Rye, not three X, but Rye, the name of a suburb of New York, is something dear to the memory of quite a few motorists. At the recent New York shows, the owners of a garage in that town took occasion to advertise their business widely by distributing cards. It was amusing to watch the facial expressions of some of the recipients. Often it would take the form of "Let me see—Rye, where have I heard that name before. O, yes! That's the place where I was held up to the tune of fifteen by the judge last summer. Never again." But things have changed since then and the inhabitants of Rye are keenly curious as to what will happen to speeders arrested from now on, as W. N. Edwards, the new judge, is in the automobile business himself.

The Automobile in "Bedford's Hope."

"Bedford's Hope," one of the very "up to the minute" things in melodrama, which has lit upon New York after having been duly tried upon the dogs, embodies an automobile thriller of the pure wool and a full yard wide variety. It is the work of Lincoln J. Carter, a pioneer of modern theatrical sensationalism and he is credited with having achieved a new triumph in stage realism. "Bedford's Hope" has not the faintest connection with its title, but for all that, it is the opinion of the critics that not in years has anything so realistically exciting been attempted on the stage

as the thrilling race incident that brings the third act to a whirlwind close, when an automobile is disclosed in contest with a passenger train racing across the Bad Lands of Montana. The train bears the villain, bent on the financial destruction of the father of the youth and girl who occupy the touring car. The automobile, of course, makes the express train look like thirty cents.

Trophy Thieves Under Arrest.

Although the miscreants who purloined the Pyrenees Trophy from one of the stands in the British Show a few weeks ago, have not as yet appeared to confess, and although the cup itself is not to be found, the London police have apprehended a couple of men whom they think are fully conversant with the theft and subsequent disposition of the booty. One Burns, and one Hall, are in custody charged with complicity in the deed, it being alleged that the former, who was the managing genius of the scheme, hired a van and took it to Olympia Hall, on the morning of November 25th, where he was met by Hall, who had the trophy under his arm, wrapped in a cloth. The prize was then carried to the stables where the van belonged, according to the police, and there broken up. Evidence of identification was taken at a preliminary hearing, and a conviction is expected at the trial which is soon to come.

New York's Police Trap Abolished.

New York City's new police commissioner, General Bingham, proposes saving the city money. On Friday last the "McAdoo automobile telephone trap," in upper Broadway, went out of existence and the six policemen and one roundsman were sent back on post; the city thereby saves \$9,900 a year in extra salaries. The new commissioner discovered that since the establishment of the trap in July, not an arrest has been made. Hereafter the work will be done by two policemen on motorcycles.

Louisville Club Incorporated.

The Louisville Automobile Club, of Kentucky, has "taken out its papers," with no capital stock and therefore no power to incur debt. Its objects, as stated in the charter, are to maintain the rights of automobile owners, to discourage reckless driving and to encourage rational legislation and further good roads. The incorporators are: George H. Wilson, J. W. Lewman, William C. Pfingst, Harrison Robertson and Biscoe Hindman.

California Wants More Money.

The Automobile Club of California has found insufficient the \$35,000 collected for the building of the seven miles of road over the new boulevard, which will give a good exit from and entrance to the city of San Francisco. Ten thousand dollars more is needed, so the subscription list will be reopened.

ENDURANCE RUN EXCITING

Police Trap and Mountain Climbing Made it Memorable—Honors are Split.

San Diego, Cal., Jan. 27.—C. A. Hawkins, of San Francisco, at the wheel of a fifteen horsepower White steam car, won the touring class cup in the first annual endurance run of the Coronado Country Club, which started from Los Angeles, Thursday, 25th inst., and terminated here to-day with a race meet at Coronado Park.

The award was based upon gasoline consumption, the White having used but seventeen and one-half gallons for the jaunt of nearly 200 miles. Although the trophy was awarded the White, a 1906 model Packard, driven by Walter Donnelly, made the best all-round showing, scoring the full possible 1,000 points and consuming but twenty gallons of gasoline. A gold medal will be awarded the Packard for the most meritorious performance. In this class E. H. Howes, 24 horse-power Frayer-Miller, scored next best and W. S. Hook, 50 horsepower Apperson, was fourth.

In the class for light touring cars two twelve horsepower Fords, driven respectively by W. M. Varney, of Long Beach, and F. A. Bennett, of Los Angeles, were successful, the former winning the class cup, and the latter the economy prize. Bennett's car carried five passengers, at a per capita cost of \$2. R. C. Hamlin, 10 horsepower Franklin, scored first in the runabout class, with 97 points. The Maxwell and Stoddard-Dayton cars entered in the run, made splendid showings, but were disqualified for displaying advertising placards.

This was the club's first attempt to run a contest of this kind and naturally it has a lot to learn about such. As it is proposed to make the run an annual affair, this year's experience will doubtless prove a valuable asset in the future. The first day's stage of the run carried the tourists to Corona, 72 miles from Los Angeles, through a rolling and mining country. Massachusetts officials are not the only ones to profit by a tour as the contestants learned to their sorrow the first morning. When only twenty miles out, at Azusa, the tourists ran into a speed trap and although a few got safely by, most of them were stopped, haled before the local justice and invited to pay up. Most of the cars were equipped with speedometers and although the drivers swore to only ten miles an hour, the judge preferred to take the word of his constable and the victims finally were permitted to proceed after depositing \$50 for bail. The second day's route led over three ridges of the coast range, in some places the grade reaching thirty per cent., through Temecula, Pala Mission, Valley Center, Escondido, Mission Valley, through the San Diego River at the ford and thence into the city, where the trip ended. En route over the mountain,

one big car ran over the bank and spilled the two men and their wives, but they landed in the trees and escaped with a scratching. The brakes on another car gave out and it ran into the bank. Two other cars then quit.

This afternoon's race meet at the Coronado mile track attracted a large crowd of enthusiasts and proved a big success. The expected star of the meet—Webb Jay's "Whistling Billy"—did not shine, however, which proved somewhat of a disappointment. It overhauled one of the new White runabouts in a pursuit race at two miles, but broke down in the one mile time trial. The keen sport furnished by the other events though compensated for the shortcomings of the steam "whistler." The summaries follow:

Five miles free-for-all—W. S. Hook, 50 h. p. Apperson, first; J. A. Clairemont, 20 h. p. Napier; Ralph C. Hamlin, 10 h. p. Franklin, third; H. C. Olive, 30 h. p. Stoddard-Dayton, fourth; G. A. Bradbeer, 16 h. p. Premier, fifth. Time, 6:32 3-4.

Two miles for runabouts—R. C. Hamlin, 10 h. p. Franklin, first; G. A. Bradbeer, 16 h. p. Premier, second; Hetman Lotz, 20 h. p. Napier, third. Time, 3:25 1-4.

Two miles against time—George A. Bradbeer, 16 h. p. Premier. Time, 3:26 3-4.

Five miles for fully equipped touring cars, carrying four passengers—W. S. Hook, 50 h. p. Apperson, first; Walter Donnelly, 24 h. p. Packard, second; Harry Olive, 30 h. p. Stoddard-Dayton, third; A. Laywell, 24 h. p. Frayer-Miller, fourth. Time, 6:32.

France Finds Another Course.

According to cable reports, France has selected the course over which the revamped "Grand Prix" is to be run this year under another name. It is termed the "Circuit de la Sarthe" and is considered admirably adapted to the purpose. It is in the vicinity of Lemans, just far enough from Paris to escape the horde of tourists who usually frequent the race courses during the training period. The city of Lemans has guaranteed \$20,000 toward defraying the expenses of the race. So far so good, but the racing committee of the French Club has made a further decision which has already given rise to endless discussion. It is to make the contest 720 miles, running it off in instalments of 360 miles each on successive days. This, however, has to be passed upon by the club before becoming final.

Salt Lake City, Utah, automobilists, headed by Leroy C. Snow, are trying to interest sufficient capital to build a speedway from Salt Lake to Salt Air and thence skirting the lake for several miles. The motorists reason that the horsemen of the city will subscribe liberally towards the project, for a speedway would draw all automobilists to it and leave the other drives in the city to the indisputed possession of the horsemen.

WANTED HIS MONEY'S WORTH

He Watched the Filling of His Tank and then Asked a Question.

Few others connected with the automobile business are in such a favorable position to study human nature as the garage keeper. If all the reports as to the tricks practiced by the members of the latter fraternity be considered as gospel, he is certainly not a much maligned individual, and that such reports are believed in many quarters goes without saying.

An owner who could conceive of no good as inherent in any garage keeper always was at pains to watch every ounce of gasoline and lubricating oil that was put on his car, much to the disgust of the attendant who did not appreciate this imputation upon his honesty. Upon replenishing the car's fuel tank with a five-gallon tin of gasoline in accordance with instructions, he found that not quite five gallons were required to fill it. There was about a pint left in the tin after completing the operation. The owner anxiously waited to see what would follow, and when the attendant started to walk off after having replaced the tank cap, asked him:

"Well, what are you going to do with that?"

The attendant, after disgustedly looking in turn at the remnant of gasoline and the owner in turn, replied:

"What do you want me to do? I'll put it in your pocket of you think you need it."

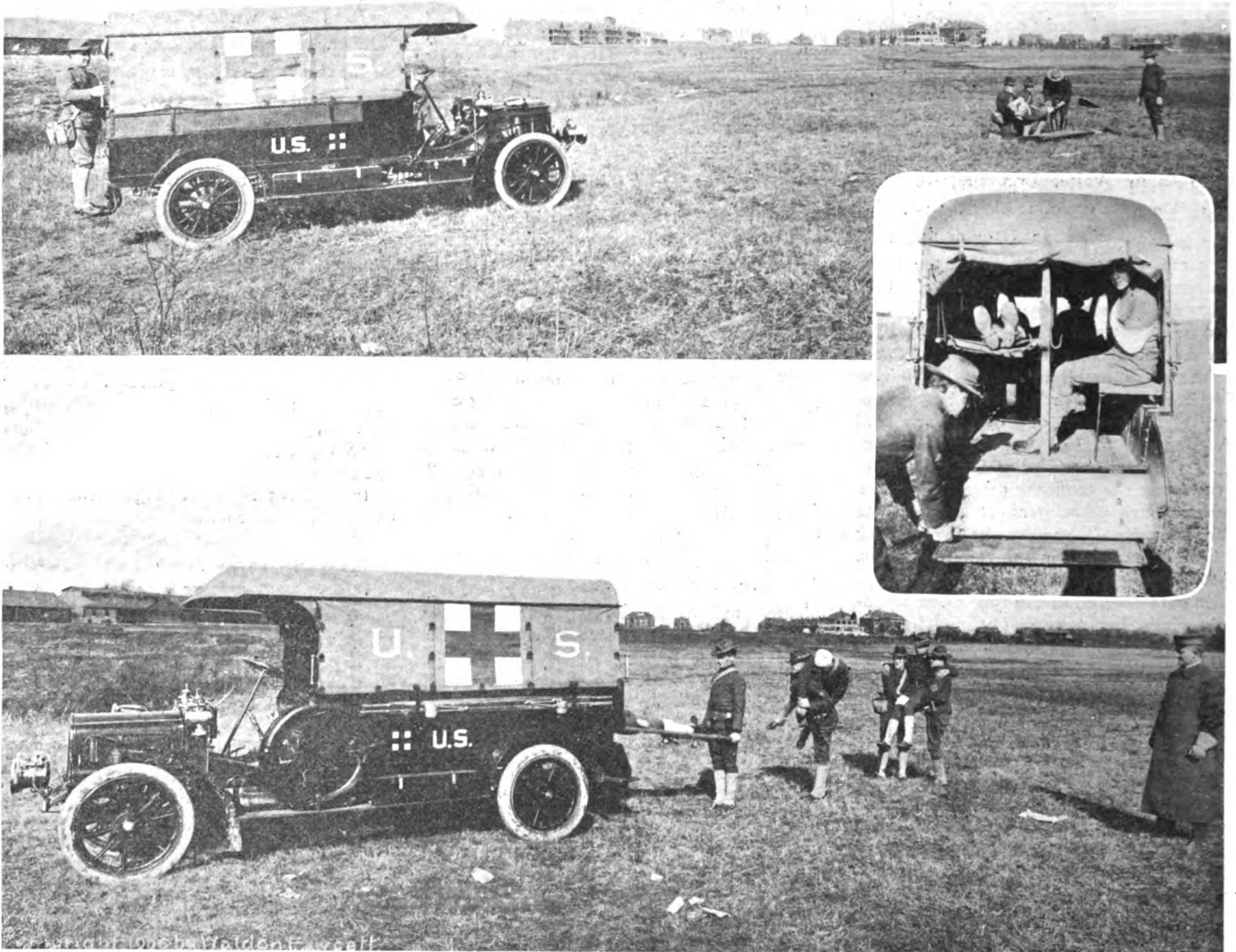
Motor Cars for Electioneering.

Seldom has the automobile played such an important part in politics as at the recent general elections in England. Candidates who did not make use of the car were decidedly in the minority. And one of these "antis" had a curious experience. Fearing to offend his agricultural constituents, he stuck to dobbin and as a part of his campaign literature, issued a cartoon of an automobilist and his machine, abstracted from Punch. As a sequel both the motor-ing candidate and his driver are suing the defeated horse owner for financial balm, claiming that the cartoon constituted a libel on their driving abilities and Punch has brought suit for infringement of copyright.

18,000 Miles Without Trouble.

Glasgow boasts of a citizeness, who in turn brags of what appears to be the world's long distance non-stop record. She has been the owner of a car for 18 months past during which time she claims to have covered 18,000 miles without an involuntary halt through mechanical trouble. It is a testimony to reliability of which any maker might well be proud and it would be interesting to learn of similar experiences with American cars on American roads.

United States Army Adopts an Automobile Ambulance



TRAINING THE HOSPITAL SQUAD IN THE USE OF THE NEW AMBULANCE.

Although the War Department has from time to time experimented with motor cars in various ways, seeking to adapt them to one or another branch of the service, no attempt has been made to apply them to hospital work up to the present time. Now, however, a study of the automobile ambulance is to be made, a trial machine having been purchased and regularly established at Fort Myer, Va., near Washington. It has been said that practically no change has been made in the methods of transporting the dead and wounded since the period of the Civil War, and if this be the case, the

new departure is one which is all the more radical, though none the less welcome, a change in the tactics of the Department.

The machine chosen for the initial trials is mounted on a White steam touring chassis of standard type, though somewhat lengthened out to make room for the roomy closed body which, despite the great length of wheel base secured, considerably overhangs the rear wheels. The spring suspension is of unusual length, thereby adding to the natural effect of the long base in securing a remarkably easy riding vehicle. The interior is fitted up in regulation style,

a folding stretcher and emergency supplies being stored away in lockers and racks, while a folding seat is placed on one side opposite the cot.

The use of the motor ambulance in regular field drill work has been commenced already, its utility thus being put to the test. As shown in the illustrations, it is being used on the parade ground, its crew going through stretcher drill, and practicing its use. The use of motor ambulances has been put to a most practical test in several cities where those installed have stood rigorous usage of municipal emergency.

IMPROVEMENTS IN OILING

Many Much-Needed and Far-Reaching Changes Effectuated—Purposes They Serve.

One of the little things, comparatively speaking, which have done much toward increasing the prejudice of the anti-motoring public, and which have contributed not a little toward taming the enthusiasm of the user, has been the propensity of the average car for dripping oil in greater or less quantities, and on all occasions. Aside from the unpleasant result of this in the smooching of well kept streets, and garage floors, it has involved in every case a very marked wastage of oil, with consequently increased expense to the owner. Thanks to the development of the mechanical oiler to its present state of sufficiency, and the better construction of the mechanical parts of the car, there is less trouble on this score from the new cars, than there was a year ago, yet many of the new ones are not blameless, and there are in existence, numerous machines of less recent construction which are extremely bad in this respect.

Generally speaking, any overflow of oil from a bearing, may be taken to indicate that the journal is worn to such an extent that the oil has a comparatively free passage to the outside of the case, but this is not always true, as will be shown presently. When such is the case, however, the steps taken to correct the poor adjustment of the wearing surfaces should tend also to correct the other and from the common point of view, less important difficulty, of flooding on the outside. In some instances, felt washers are provided to soak up any overflow of this nature, and prevent the spread of the oil to adjacent parts, but they are not always of value in effecting the purpose for which they are intended. In other instances, the flooding is caused by faulty design, it being inevitable in any case where moving parts are made to slide in and out from an enclosure where oil is freely circulating, unless they are packed with glands and regular packing after the fashion in which the piston rods of steam engines are treated. Also, when oil ways are grooved in the bearing metal, if they are led too close to the outer end of the journal, the surplus feed is more likely to work out than in, and on this account, such grooves should invariably be cut in such a way that they will tend to induce a flow inwardly thereby conserving the supply, and lessening the tendency to wastage on the outside. Bearings which are fed from one side and drained at the other, either through oil wells provided with ring oilers, or by simple drains, should give little or no trouble unless they are considerably worn, while ball bearings, even when placed in cases which are flooded with oil, are not likely to give any trouble on this score, be-

cause they require little lubricant themselves, and are easily to be protected from flooding by means of washers.

Thus it will be seen that in general, the only method of cure to be adopted in the hope of reducing the overflow from a bearing, is to readjust it to reduce any possible amount of play, and to cut the oil grooves in such a way that they shall tend to lead the surplus lubricant away from the the outer end of the journal, without at the same time skimping the distribution to the entire surface. In cases where gear shifting rods, for instance, are led out of the gear box below the oil level, they can be packed by means of an improvised gland; while in others the refitting of the bearing is the only expedient which can be resorted to, and one which will prove but a temporary relief.

Aside from the common run of bearings, which are subject to the same faults arising from similar causes, there is one specific difficulty in the average machine which comes in a different way, and requires special treatment. It is to be noticed that in most cars, the greater amount of overflow from the engine base, and indeed, from the entire machine, emanates from the rear bearing in the crank case. The reason of this is that the motion of the car, coupled with the churning effect which the moving crank shaft exerts on the oil tends to slop a much greater quantity of the lubricant up against the rear end of the case than upon any other part. This effect is greatest when the machine is inclined in hill-climbing, and least when running down hill, but at all times, tends to concentrate the bulk of the oil in the rear end of the case. This tendency is only partially reduced by partitioning off the case by means of bulkheads, as is done in many machines, for whatever lubricant is left in the vicinity of the rear bearing will be distributed over that end of the case and will find its way out unless special provision is made to check its progress.

To guard against this tendency, many motors are provided with a little flange turned inwardly from the flywheel, and running in a groove formed in the crank case. This, in theory, at least, tends to catch the surplus oil, which is thrown by centrifugal force against the flange in the case, and from there drained off to the interior. In many cases, however, the device works backwards, the oil creeping up through the drain and being distributed impartially over the inner side of the hood by the very flange which was intended to catch and retain it. A method of improving the efficiency of such a device, is to plug the opening of the drain into the case and tap into it a small copper pipe which is led around to the front of the motor, being given sufficient fall to ensure a good flow when the car is inclined by a considerable amount. By this means, the surplus is returned to the point from which it tends to flow, and a natural circulation induced through the entire case.

Where no such arrangement has been provided by the makers, however, it is hardly worth while to install one, a better method being to ensure a close fit in the bearings, and to lead the oil grooves away from the end, and provide a good and efficient drain leading directly into the case. Thus the forward end of the bearing is sure to get a plentiful supply of oil, both from the overhead feed, and from the surging upward from the case of the wash there, while the natural tendency of the oil may be relied upon to force sufficient oil to the rear end to give it the proper amount of lubricant.

As a general thing, the spectacle of a car standing by the curb and dripping oil from every pore, may be taken as an indication of negligence on the part of the driver, since with proper attention to detail in the way of adjustment, and due care not to use too much oil, the average machine may be driven many hundreds of miles without causing trouble in this way. There are chronic cases which are difficult to cure, but the careful driver will take care in such instances to see that the overflow is caught either in the or underpan by bits of cotton waste so disposed as to keep the drip from reaching the pavement. For a machine which leaks oil, and a machine which leaks water, are nearly as great a disgrace to the driver as a machine which "lays down" in the street, in front of its owner's house, and refuses to budge without long persuasion and the use of many tools.

Motor Cars for Grocery Drummers.

Jonathan Blackwell & Co., a big wholesale grocery firm in Trenton, N. J., are going into automobiles, or at least they are going to equip all their drummers with the modern means of locomotion, having contracted for a number of specially built cars. Blackwell is of the opinion that the small grocer is the most profitable trade for the wholesaler and because of bad train service at small stations travelers do not get around often enough to the little fellow. The cars with which the firm proposes to provide all their traveling men will be large enough to carry a full line of samples and that will save in drayage charges as well as for excess baggage. They also will be large enough for the drummer and the chauffeur—the firm sending out a competent driver with each machine—to sleep in should occasion arise.

To Clear the Carburetter.

It is suggested that the trouble of dismounting the spray of the carburetter or of taking the latter down entirely might be avoided by turning a thread on the outside of the stud formed in the bottom of the carburetter to take the needle valve in order that a reducing nipple to fit the pump nozzle might be put on. With this in place the pump could be called upon to clear out any obstruction that might have found lodgment there.

Questions for the "Engineman."

"Automobile engineman" is the official title given to its chauffeurs by the City of New York, so many cars being used to expedite the business of the various departments of the metropolis that two new "enginemen" were added to the growing list on the first of the year. The successful candidates were selected from a list of applicants who were given an opportunity to display their knowledge of automobiles on paper about a month ago. The examination was divided into three heads, experience, arithmetic and technical knowledge, a percentage of 75 being required on the last named and an average of 70 on all. The successful applicants were appointed in the departments of water supply and parks.

The mathematical knowledge required was of the most rudimentary order, not going as far as the rule of three, while the "experience" consisted in filling in a blank accompanying the application and showing the would-be city chauffeur's actual career behind the wheel. The technical paper was as follows:

1. What is the difference in construction between the air-cooled and the water-cooled motor, and what attachments or extra parts are necessary for the operation of either type?

2. Describe as clearly as possible exactly what takes place in the cylinder of a four-cycle motor during one complete cycle, including the necessary operations of valves, ignition on the car and use of (a) Spark plug, etc.

3. Describe the construction, location and use of (a) Coil; (b) Commutator; (c) Spark-plug.

4. Describe in the same way the construction, location and use of (a) Circulating Pump; (b) Radiator; (c) Muffler; (d) What effect has cutting out the muffler have on the engine?

5. What are the most important parts of the engine to be lubricated? State fully what points are to be looked to in regard to kind and amount of oil used and care of lubricating devices.

6. (a) State all the points to be looked to in taking supply of gasoline; (b) What special care is necessary with the water circulating system in cold weather?

7. (b) What care should be taken in changing gears starting and reversing; (b) How is the speed of engine regulated while running and why does this regulation cause a change of speed?

8. What brakes are there on an automobile? Describe how each one acts and what is its special use.

9. State in detail everything you would do or see to in preparing an automobile in your care to take out on the road and in getting under way.

10 and 11. Write a short account in the form of a report to the owner describing some accident to the engine or machinery of the car in your charge and how you repaired the same.

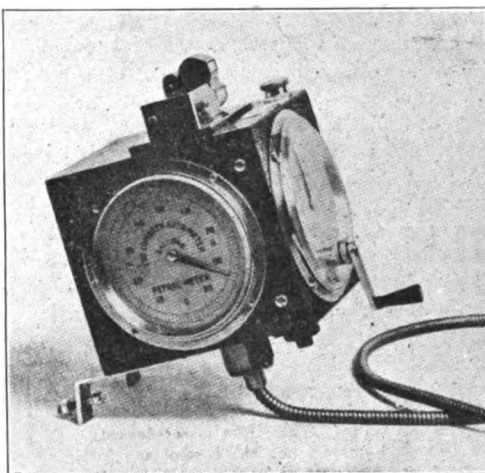
12. What are the city regulations in re-

gard to speed and lamps, covering automobiles?

13. Draw rough sketches showing the proper course of a vehicle in turning from one street into another (a) to the right, (b) to the left; (c) also what other general rules should the driver of a vehicle always observe?

Records Mileage, Speed and Fuel.

In the development of such accessories of the motor car as are used in measuring the speed and distance traveled, and the consumption of the various essentials as fuel and lubricants, there is ample scope for the full sway of inventive genius. Great advantage is being taken of this, and the resulting crop of fittings is as numerous as it



is varied, and naturally involves one or two types in which the uses of several independent instruments are combined in one. Among these is a recent invention, the Lumsden Quadruple Meter, a British device, which, as its name implies, combines the functions of speed indicator, trip and total mileage recorders, and a fuel meter.

The speed indicator, unlike most of its class, is intended to notify the driver when any predetermined speed has been reached by the sounding of a small bell. By means of a small crank located at the side of the instrument, and at the base of one of the dials, the meter may be set to any desired speed, a hand upon the dial pointing to the speed at which the bell will sound its note of warning. As each turn of the crank corresponds to a certain known movement of the pointer, the setting may be done in the dark without reference to the dial, and thus the device proves itself equally efficient by day or night.

The total and trip mileage recorders are mounted on top of the case, and work upon the ordinary cyclometer principle, the trip register being readjustable to zero at any time, the total record continuing up to 10,000 miles and then repeating. The fuel meter, which registers upon the second of the two larger dials the amount of fuel used, up to 100 gallons, and then repeats, is heralded as an exclusive feature. It furnishes a ready means of comparing the

rates of consumption under various conditions of load, highway, and weather, and also gives an accurate and authentic basis for tallying the operating costs on the road with those which are obtained from the dealers' statements. And even apart from its economic value, it furnishes a quantitative measure of the relatively efficient performance of the motor at different times, and under different conditions.

In the construction of the device, all high speed mechanism has been done away with, and the movements used are such as are not likely to become deranged on that account. The mechanism is entirely mechanical, no electricity, magnetism or compressed air being used in any way. The drive from the front wheel of the car, is by means of a flexible shaft which takes its motion by friction disc bearing against a ring which is mounted on the wheel. The device is enclosed in a cubical case $4\frac{3}{4} \times 4\frac{3}{4} \times 5$ inches in external dimensions.

Uses of a Herring-Bone Gear.

A rather unique provision for the permanent adjustment of the driving and lay shafts of a transmission set is to be seen in the new type of G. G. V. change gear mechanism, in which a pair of herring-bone gears are used for driving the secondary of the two elements. Of course, in this case, the lay shaft is constantly in motion, but in a case where this is to be done, the use of the herring-bone type of gears, tends to absorb a part of the thrust of the bevel driving set, and to relieve the ball bearings with which every well made transmission is now equipped.

To Avoid Battery Troubles.

Speaking of measuring instruments: On the Peerless spark coil box and a part of it is found a little voltmeter, which indicates continually to the operator exactly how his battery stands. This is a device that ought to find general adoption for expensive cars where a battery is used. It will ward off a lot of trouble, because before starting on a long tour or run the operator would see that his voltage was getting dangerously low and recharge, saving the annoyance from exhausted batteries than which there is not greater.

Belts for Cooling Fans.

It is to be noticed that several of the American makers are this year using spring belts for driving the radiator fans, instead of the more common leather belt with some sort of an extra contrivance for regulating its tension. For all drives which require but little power, the spring belt is to be recommended, as it requires little or no attention from the driver, preserves its tension automatically, is not likely to give way at the fastening when properly joined, and is not affected by weather conditions.

"Motorcycles: How to Manage Them." Price, 50c. The Motor World Co., 154 Nassau Street, New York.

The How to Judge Stearns

One Model 45 Horse Power

Seek first perfection of workmanship. Poor materials do not warrant it. Bad design is not worthy of it. **THE MATERIALS** in the Stearns Car are brought from any country that makes the best—each for its purpose.

THE DESIGN is the refinement of accepted practice and shows no after thoughts. They are worthy of **THE WORKMANSHIP** that **HAS NEVER BEEN EQUALLED IN SKILL AND IN THE TIME SPENT ON EACH CAR.** More than 2100 hours labor (10 months of working day) by expert American machinists in finishing each Stearns Car makes the parts fit so they snap together like your watch lid, hang tight, yet part in the hands.

By what process could any maker, anywhere, produce a better car? Where is another so made?

After producing this car we figured the cost and selling price. We were pleased to find that the duties and excessive commissions on our only competitors, make our charge—\$4,250—barely half the cost of any foreign car that makes a comparison possible.

We seek communication with those who will appreciate this car. For such it will give a service greater than any other mechanism the world has produced. Shall we send you our book of details?

SPECIFICATIONS—40-45 h. p.; 4-cylinder motor, forward under hood; transmission, 4 speeds forward, one reverse, selective type; ignition, jump spark with magneto, batteries and coil; carburettor, double automatic; gears and shafts, special chrome nickel steel; crank shaft machined from solid billet; I-section axles, forged in one piece; frame, pressed steel; wheel base, 118 inches; double chain drive; transmission equipped with imported HessBright bearings.

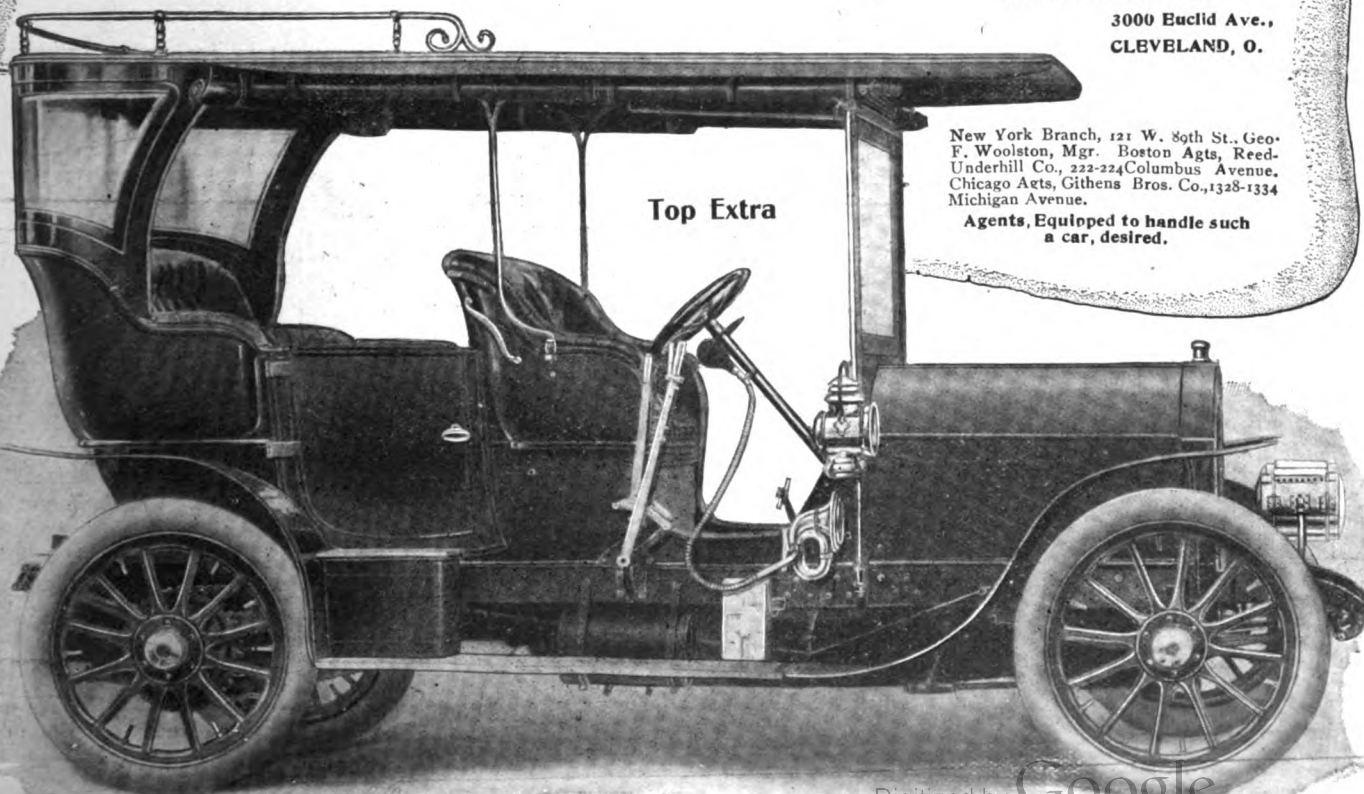
THE F. B. STEARNS CO.,
Members A. L. A. M.

3000 Euclid Ave.,
CLEVELAND, O.

Top Extra

New York Branch, 121 W. 89th St., Geo. F. Woolston, Mgr. Boston Agts, Reed-Underhill Co., 222-224 Columbus Avenue. Chicago Agts, Githens Bros. Co., 1328-1334 Michigan Avenue.

Agents, Equipped to handle such a car, desired.



NOW FOR CHICAGO'S SHOW.

(Continued from page 19)

Goodrich Co., The, B. F., Akron, Ohio, Space 204 G. C.—Goodrich clincher and mechanically attached tires.

Goodyear Tire & Rubber Co., Akron, Ohio, Space 166-167 G. C.—Goodyear mechanically fastened tires.

Gray & Davis, Amesbury, Mass., Space 165-166 G. C.—Acetylene and oil lamps.

Hancock Mfg. Co., Space 76 G. A.—Specialties.

Hardy Co., R. E., New York, N. Y., Space 178, G. C.—"Sta-Rite" spark plugs.

Harris Oil Co., The, A. W., Providence, R. I., Space 179 G. C.—Lubricants.

Hartford Rubber Works Co., Hartford, Conn., Space 158-159 G. C.—Perfect Dunlop and Hartford detachable clincher tires.

Hartford Suspension Co., New York, N. Y., Space 195 G. C.—Truffault-Hartford Suspensions.

Hicks Speed Indicator Co., Brooklyn, N. Y., Space 53 G. A.—Speed indicators.

Hendee Mfg. Co., Springfield, Mass., Space 283 S. F. C. A.—Indian motorcycles and attachments.

Hine-Watt Mfg. Co., Chicago, Ill., Space 146 G. C.—Acetylene lamps and generators.

Haynes Automobile Co., Kokomo, Ind., Space 7-8 M. F. C.—Haynes touring cars.

Holsman Automobile Co., Chicago, Ill., Space 95 M. F. C.—Holsman automobiles.

Hutchinson Electric Horn Co., New York, N. Y., Space 72 G. A.—Electric horns.

Hyatt Roller Bearing Co., Harrison, N. J., Space 151 G. C.—Roller bearing axles and parts.

Imperial Brass Mfg. Co., The, Chicago, Ill., Space 279, S. F. C. A.—Wixom compound air pump, and Imperial Lyon headlight adjuster.

International A. & V. Tire Co., New York, N. Y., Space 155 G. C.—Detachable tires.

Jackson Automobile Co., Jackson, Mich., Space 123-124 F. F. C. A.—Jackson cars.

Jones Speedometer, New York, N. Y., Space 153 S. F. C. A.—Speedometers and odometers.

Jeffrey & Co., T. B., Kenosha, Wis., Space 42-47 M. F. C.—Rambler cars.

Kansas City Motor Car Co., Kansas City, Space 6-7 M. F. A.—Kansas City cars.

Kinsey Mfg. Co., Dayton, O., Space 71 G. A.—Radiators, hoods, fenders, etc.

Knight & Kilbourne Mfg. Co., Space 10 M. F. A.—Specialties.

Knoblock-Heideman Mfg. Co., South Bend, Ind., Space 221 S. F. C. A.—Ignition apparatus.

Knox Automobile Co., Springfield, Mass., Space 55-59 M. F. C.—Knox air-cooled touring cars.

Lear Automobile Co., Oscar, Columbus, Ohio, Space 45 M. F. A.—Frayer-Miller touring cars.

Limousine Carriage Mfg. Co., Chicago, Ill., Space 219-220 S. F. C. A.—Bodies.

Locomobile Company of America, Bridgeport, Conn., Space 48-51 M. F. C.—Locomobile touring cars.

Logan Construction Co., Chillicothe, Ohio, Space 48 M. F. A.—Logan touring cars.

London Automobile Supply Co., Chicago, Ill., Space 263 S. F. C. A.—Tops.

Long Mfg. Co., Chicago, Ill., Space 184 G. C.—Hoods and radiators.

Lozier Motor Co., New York, N. Y., Space 36 M. F. A.—Lozier touring cars.

Look Electric Co., Space 66 G. A.—Ignition apparatus.

McCord & Co., Chicago, Ill., Space 156 G. C.—Force Feed-Lubricators.

McGowan Mfg. Co., New York, N. Y., Space 297 G. C.—Odometers.

McGraw Motor Truck Co., Cleveland, Ohio, Space 39 M. F. A.—Commercial vehicles.

McTeague J. B., Chicago, Ill., Space 52 G. A.—Samson tires.

Medien-Kipp Mfg. Co., Madison, Wis., Space 266 S. F. C. A.—Lubricators.

Manhattan Storage Co., New York, N. Y., Space 269-270 S. F. C. A.—(?)

Marion Motor Car Co., Indianapolis, Ind., Space 47 M. F. A.—Marion air-cooled cars.

Maxwell, Briscoe Motor Co., Tarrytown, N. Y., Space 34-35 M. F. A.—Maxwell touring cars.

Michals, Co., H. Sargent, Space 19 M. F. A.—Specialties.

Michelin Tire, American Agency, New York, N. Y., Space 51 G. A.—Michelin tires.

Milwaukee Rubber Works Co., Milwaukee, Wis., Space 82 G. A.—Fawkes tires.

Mitchell Motor Car Co., Racine, Wis., Space 80-82, M. F. C.—Mitchell touring cars.

Moline Automobile Co., Moline, Ill., Space 33 M. F. A.—Moline cars.

Moon Motor Car Co., St. Louis, Mo., Space 49 M. F. A.—Moon touring cars.

Morgan & Wright, Inc., Chicago, Ill., Space 148-149 G. C.—M. & W. tires, clincher and detachable types.

Motorcar Co., The, Space 250 S. F. C. A.

Motor Car Equipment Co., New York, N. Y., Space S. F. C. A.—Supplies and sundries.

Motsinger Device Mfg. Co., Puddledon, Ind., Space 144 G. C.—Motsinger Auto Snapper.

N. Y. & N. J. Lubricants Co., New York, N. Y., Space 180 G. C.—Lubricants.

National Carbon Co., Cleveland, Ohio, Space 133 G. C.—Columbia Dry Batteries.

National Motor Vehicle Co., Indianapolis, Ind., Space 76-79 M. F. C.—National Touring cars.

North Chicago Machine Co., Chicago, Ill., Space 281 S. F. C. A.

Nordbe & Marmon Co., Indianapolis, Ind., Space 227-228 S. F. C. A.—Marmon air-cooled cars.

Northern Mfg. Co., Detroit, Mich., Space 69-70 M. F. C.—Northern touring cars.

Oliver Mfg. Co., Chicago, Ill., Space 192 G. C.—Peerless automobile jacks.

Olds Motor Works, Detroit, Mich., Space 62-67 M. F. C.—Olds touring cars.

Packard Motor Car Co., Detroit, Mich., Space 34-37 M. F. C.—Packard touring cars.

Panhard & Levasor, New York, N. Y., Space 16 M. F. A.—Panhard cars.

Pantasote Co., New York, N. Y., Space 209 G. C.—Pantasote for coverings.

Palais de l'Automobile, New York, N. Y., Space 32 M. F. A.—Renault and Delauney-Belleville cars.

Peerless Motor Car Co., Cleveland, Ohio, Space 9-12 M. F. C.—Peerless touring cars.

Pierce, Co., The, G. N., Buffalo, N. Y., Space 105-107 M. F. C.—Pierce Arrow car.

Pennsylvania Rubber Co., Jeanette, Pa., Space 202 G. C.—Detachable tires.

Pope Mfg. Co., Hartford, Conn., Space 20-26 M. F. C.—Pope-Toledo, Pope-Hartford, Pope-Tribune and Pope-Waverley cars.

Premier Motor Mfg. Co., Indianapolis, Ind., Space 93 M. F. C.—Premier air-cooled car.

Pierce Engine Co., Racine, Wis., Space 125 F. F. C. A.—Pierce-Racine cars.

Pungs-Finch Auto and Gas Engine Co., Detroit, Mich., Space 121 F. F. C. A.—Pungs-Finch cars.

Prest-O-Lite Co., Indianapolis, Ind., Space 177 G. C.—Acetylene gas tanks.

Railway Appliance Co., Chicago, Ill., Space 271 S. F. C. A.—Auto-cle wrenches.

Rainier Co., The, New York, N. Y., Space 20-23 M. F. A.—Rainier touring cars.

Rapid Motor Vehicle Co., Pontiac, Mich., Space 37 M. F. A.—Rapid Commercial cars.

Reading Standard Cycle Mfg. Co., Reading, Pa., Space 63 A.—Thoroughbred motorcycles and Reading Standard bicycles.

Reliance Motor Car Co., Detroit, Mich., Space 94 M. F. C.—Reliance cars.

Reo Motor Car Co., Lansing, Mich., Space 42-44 M. F. A.—Reo Touring cars.

Reilly & Sons, Space 80 G. A.—Robes.

Remy Electric Co., Anderson, Ind., Space 171 G. C.—Remy ignition apparatus.

Republic Rubber Co., Youngstown, Ohio, Space 210 G. C.—Tires.

Rose Mfg. Co., Philadelphia, Pa., Space 168 G. C.—Neverout lamps.

Royal Motor Car Co., Cleveland, Ohio, Space 98-99 M. F. C.—Royal touring cars.

Samson Leather Tire Co., New York, N. Y., Space 261-262 S. F. C. A.—Samson leather tires.

Schwartz Wheel Co., The, Philadelphia, Pa., Space 172 G. C.—Wheels.

Shelby Steel Tube Co., Pittsburg, Pa., Space 147 G. C.—Steel tubing.

Sherwin-Williams Co., Cleveland, Ohio, Space 286 S. F. C. A.—Varnishes.

Smith & Mabley, Inc., New York, N. Y., Space 11-13 M. F. A.—C. & M. Simplex cars.

Soules Motor Car Co., Grand Rapids, Mich., Space 1 M. F. A.—Delivery wagons.

Spicer Universal Joint Co., Plainfield, N. J., Space 185 G. C.—Spicer universal joints.

Sprague Umbrella Co., Norwalk, Conn., Space 140 G. C.—Canopy tops.

Speed Changing Pulley Co., Indianapolis, Ind., Space 62 G. C.—Universal carburetors.

Spitdorf, C. E., New York, N. Y., Space 152 G. C.—Ignition outfits.

Standard Carriage Lamp Co., Chicago, Ill., Space 225 S. F. C.—Lamps.

Standard Oil Co., The, Chicago, Ill., Space 175 G. C.—Fuels.

Steadard Roller Bearing Co., Philadelphia, Pa., Space 173 G. C.—Roller bearings, axles, etc.

Stearns Co., The, F. B., Cleveland, Ohio, Space 40, 54 M. F. C.—Stearns touring cars.

Steel Ball Co., The, Chicago, Ill., Space 135 G. C.—Hill precision oilers.

Stevens Arms & Tool Co., The, I., Chicopee Falls, Mass., Space 27-29-41 M. F. C.—Stevens-Duryea cars.

St. Louis Motor Car Co., St. Louis, Mo., Space 68 M. F. C.—St. Louis cars.

Studebaker Automobile Co., South Bend, Ind., Space 38-39, 52-53 M. F. C.—Studebaker commercial and pleasure cars.

Swinehart Clincher Tire & Rubber Co., Akron, O., Space 183 G. C.—Swinehart tires.

Svensen Machine Co., Pittsburg, Pa., Space 46 M. F. A.—Electric vehicles.

Temple, Ralph, Chicago, Ill., Space 15 M. F. A.

Thomas Motor Co., E. R., Buffalo, N. Y., Space 30-33 M. F. C.—Thomas Elver touring cars.

Timken Roller Bearing Axle Co., Canton, O., Space 188 G. C.—Roller bearing axles.

Tincher Motor Car Co., Chicago, Ill., Space 117 F. F. C. A.—Tincher touring car.

Tolheim Mfg. Co., Cedar Rapids, Iowa, Space 170 C.—Gasoline outfits.

Trit Electric Co., Space 69 G. A.—Ignition apparatus.

Valentine & Co., New York, N. Y., Space 206 G. C.—Varnishes.

Vesta Accumulator Co., Chicago, Ill., Space 259 S. F. A.—Ignition batteries.

Ventilated Cushion Co., Space 85 G. A.—Cushions.

Vehicle Equipment Co., New York, N. Y., Space 128-130 F. F. C. A.—Electric vehicles.

Volta Battery Co., Space 282 S. F. C. A.—Batteries.

Veeder Mfg. Co., Hartford, Conn., Space 160 G. C.—Odometers, tachometers, etc.

Universal Storage Battery Co., Space 218 S. F. C. A.—Storage batteries.

Waltham Mfg. Co., Waltham, Mass., Space 89-90 M. F. C.—Waltham-Orient cars.

Way Muffler Co., Philadelphia, Pa., Space 54 G. A.—Way neck mufflers.

Wayne Automobile Co., Detroit, Mich., Space 87-88 M. F. C.—Wayne touring cars.

Warner Gear Co., Muncie, Ind., Space 181 G. C.—Warner differential and steering gear.

Warner Instrument Co., Beloit, Wis., Space 174 G. C.—Speedometers.

Webb Co., The, New York, N. Y., Space 191 G. C.—Speed indicators.

Weed Chain Tire Grip Co., New York, N. Y., Space 200 G. C.—Chain tire grips and Lashar speed indicator.

Western Tool Works, Galesburg, Ill., Space 28 G. C.—Gale cars.

Wheeler Mfg. Co., Detroit, Mich., Space 196-197 G. C.—Tops.

White Sewing Machine Co., Cleveland Ohio, Space 107-110 M. F. C.—White steam cars.

Whitely Steel Co., Chicago, Ill., Space 226 S. F. C. A.—Parts.

Whitney Mfg. Co., Hartford, Conn., Space 145 G. C.—Whitney chains.

Welch Motor Vehicle Co., Pontiac, Mich., Space 126 F. F. C. A.—Welch touring cars.

Windsor Automobile Co., Windsor, Ind., Space 251-252 S. F. C. A.—Windsor cars.

Woods Motor Vehicle Co., Chicago, Ill., Space 71-75 M. F. C.—Woods electric vehicles.

Wray Pump & Register Co., Rochester, N. Y., Space 137 G. C.—Pumps and pressure regulators.

Boston Show in Two Buildings.

Although the balconies, heretofore reserved for spectators, were thrown into the exhibition space, Mechanics' Pavilion, large as it is, has proved utterly inadequate to meet the calls for room at the Boston show, March 10-17. Accordingly, Manager Campbell has leased Symphony Hall, one block away, and there the overflow will be housed. Two years ago, the latter building was used by the importers for a display of foreign cars. Manager Campbell also hints at departures in decorative effects and as it was the Boston show that "set the fashion" in the now general scheme of harmony in signs and trappings, the hint is worthy of remark.

Queer Suit Against a Garageman.

Rather a novel defense to an action to recover \$14 for repairs to a car, brought by a Buffalo garage keeper, was a counter claim of \$300 for "having run the aforesaid automobile while in the plaintiff's possession, at such a rate of speed, that the said plaintiff was then and there pursued by the police, whereupon he brought the said automobile to such a sudden and violent stop that the said automobile was damaged in the sum of \$300, for which your petitioner therefore prays judgment." Needless to add, the plaintiff's claim was not allowed and the result was a verdict of \$39.15 in favor of the repairer.

Big Work of One Big Truck.

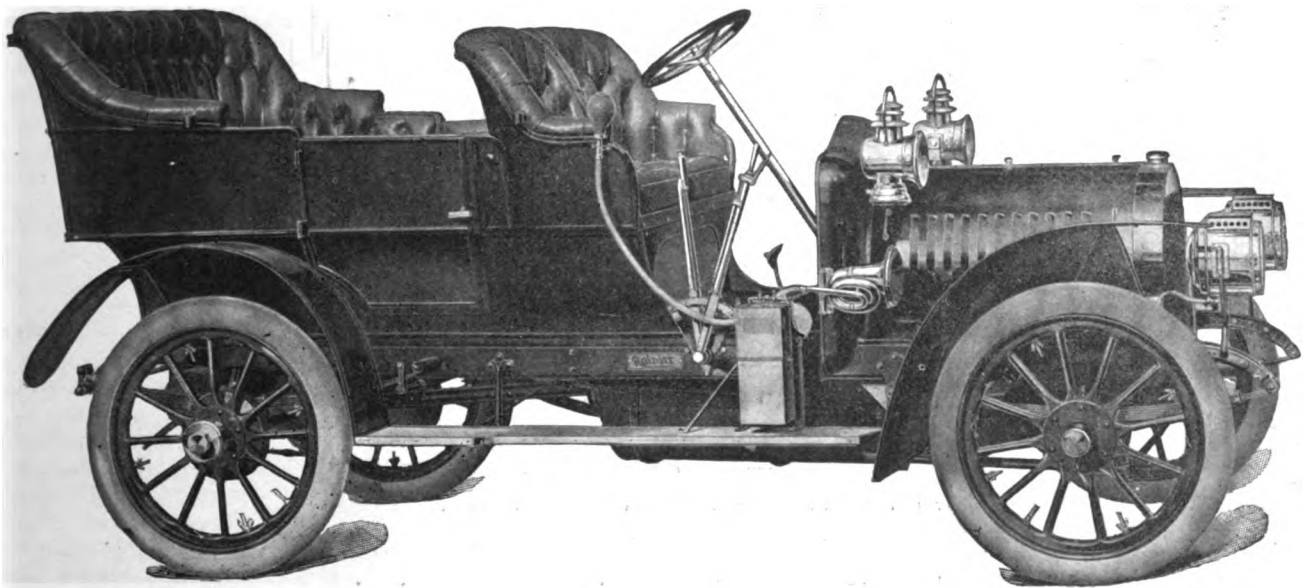
When the armory show in New York was over, one of the Vehicle Equipment Company's big electric trucks gave a demonstration that "speaks volumes." It was loaded with 2,000 pound wagon that had been on exhibition and towing a heavy three ton truck, it made off as if it was hauling a load of feathers. This scene in front of the armory was pictured in last week's Motor World, but unfortunately the credit was given to the Columbia truck.

"Motorcycles: How to Manage Them." Price 50c. The Bicycling World Co., 154 Nassau Street, New York.

Rainier

The Pullman of Motor Cars

1906 Catalogue and Cars Now Ready.



1906 MODEL B, 30-35 H. P. PRICE, \$4,000.

GUARANTEED FREE OF REPAIRS FOR ONE YEAR.

During 1905 the Rainier was the hit of the season in New York, the most critical of markets. Not a single dissatisfied customer, only favorable comments everywhere, and orders galore for the new model from former users. Before you decide, investigate the Rainier, carrying the world's broadest automobile guarantee.

Make and break spark. Simms-Bosch Magneto. Bevel gear drive.

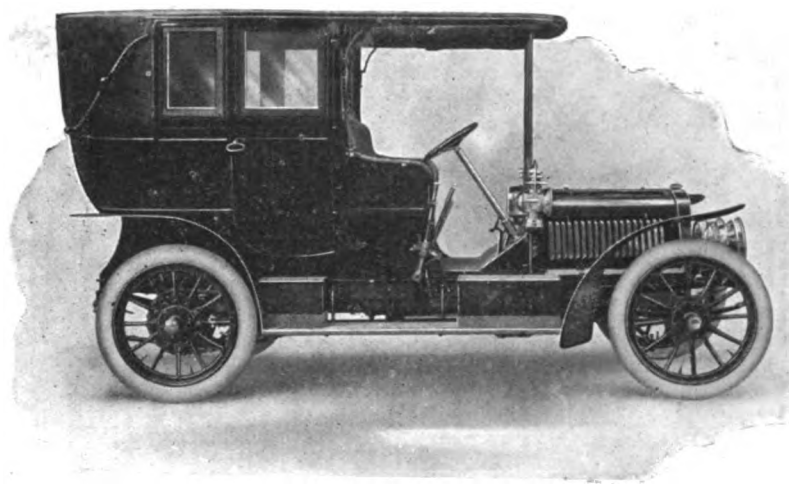
THE RAINIER COMPANY, Broadway, cor. 50th St., New York.

Chicago Branch: 1253-1255 Michigan Ave. (after January 15th).

Boston Agents: MORRISON-TYLER MOTOR CO., 121 Massachusetts Ave.

Good Agents wanted in unassigned territory.

The Rainier Car will be exhibited at the Armory Show in Chicago.



LOZIER MOTOR CARS
are built along most beautiful
lines—their general finish and
appearance being properly
in keeping with their high-
grade mechanical construction.

¶ By virtue of the extraordinary care
with which every part of a LOZIER car is
put through production, our output for
the year will be but 150 cars—*real cars—
made right—the only way we know how
to build.* Our new Catalogue, Book
Twenty-two, treats briefly upon the gen-
eral features of LOZIER construction, and
we would be glad to send you a copy.

¶ Three sizes of cars—Type C, 35 H. P., Type D, 40
H. P., and Type E, 60 H. P., ranging in price from
\$4,500 to \$8,000 will be the schedule for the year.

¶ Limousines, Landaulets and
Touring Cars now delivering.

SEE US AT THE CHICAGO AUTOMOBILE
SHOW, FEBRUARY THIRD TO TENTH.

THE LOZIER MOTOR COMPANY
FIFTY-FIFTH STREET AND BROADWAY, NEW YORK CITY
Selling Agent for Wisconsin and Illinois, Dan B. Southard, 1409 Michigan Avenue, Chicago

THE SCALING OF PAINT

Trouble that has Long Vexed Even the Carriage Makers—Causes of it.

Paint scaling has been a long-existing trouble—so long, in fact, that it has passed into paint shop records as a tradition—and it bids fair to continue to hold a prominent place in paint shop affairs. The scaling of paint is not a difficulty easily controlled, says the Carriage Monthly. The clamor of the riding public, the competition which overrides discretion, and the presence of conditions which formerly were unknown, have served to make the trouble a living issue with the body painter.

It is not a difficulty confined to the output of "cheap work" factories. Only recently a writer in a contemporary noted the fact that the chipping and scaling of paint was a noticeable feature of work sent out by some of the best Eastern builders. Hubs, felloes, spokes, springs, showed sharp edges bereft of paint and varnish. It is a well-known fact, to be sure, that the scaling of the finish from such parts is due more to the impoverished coatings of material, and to careless sandpapering which strips the material from the sharp edges where it should be left in full depth, than to any other cause or combination of causes. The widespread observation of the paint scaling issue is due, however, to causes quite foreign to those responsible for the gleaming edges of springs, spokes, felloes, hubs, side bars, etc.

In the old days no small share of this trouble came from an excessive employment of linseed oil—often boiled linseed oil—but at the present time the other extreme has been reached, and the japan soaked and turpentine thinned paint and color is the rule rather than the exception. Either extreme is deplorable and about equally as disastrous. It is Satan beset, and opens the highway to a winding train of surface disruptions.

Here and there painters are found who contend that the free use of patent materials, so-called, is responsible for the decline of the surface, but this has little standing at the court of rigid inquiry because it is known that much of the work painted and finished with the ready prepared pigments wears durably and gives good account of itself generally. The manufacturer of these products is no more accountable for the unskilled application or handling of the pigments than are the manufacturers of the ordinary paint and varnish materials.

It is simply a question of correct use and handling by the painter.

No doubt some of the paint scaling is due to the use of the regulation oil and lead foundation upon work given only a limited time for the painting. While oil and lead

is a combination of unexcelled merit when adequate time may be given for the material to dry properly and season out, it is likewise an unsafe combination when the limitations of time necessitate more or less haste in surfacing and coating upon. Blistering and deadening, and, greater than all, scaling and peeling of paint, are directly due to ensue.

There is greater danger under the present quick system of carriage painting from too much oil in the foundation coats than too little. An excess of oil is the chief germ of the paint scaling disease, and it is by far more prolific of mischief than any other.

Admitting the force of the dictum that oil is the life of the paint it is no less important to understand that it is the life of the paint only when it is given an opportunity to change its composition through the action of the air, heat and light, and when deprived of these agencies, and smothered prematurely under coatings of pigment, it seeks an outlet, a breathing space, so to speak, and at an unexpected hour it throws off its covering and bares the surface to the stares of the world.

Hence we say limit the use of oil in proportion to the reduction in time of painting the vehicle, and through this course eliminate the scaling difficulty as a result of the oil treatment.

Naturally there is another extreme to be avoided which has its origin in the excessive use of turpentine to overcome the disadvantages of the time limit. Coats thinned out to excess with turpentine are likely—indeed do—to go to the surface in a condition to dry out highly inelastic and brittle. Such coatings are due to flake and dry off early in their life of service, a fact which should stimulate the painter to overcome this defect in the system of preparing materials.

Again, we find inferior oils, turpentine and japan, and inferior pigments, too, causing a deadly blight upon the finished surface, among the manifestations of which is this same flake and scaling devilry. Adulteration and cheapening of materials has gone on and on until it is now an issue of dealing with firms having an established reputation back of their products.

Inferior materials produce a paint that lacks elasticity, adhesiveness and cohesiveness, the trinity of essentials without which any pigment must fail. Failure of the paint to hold itself together, and grip hard to the wood, and retain sufficient elasticity to respond to the changes of the wood texture, leaves the structure of varnish without support, and in a very brief while the luster disappears and the whole form and substance of the varnish is destroyed.

It has already been said that the feverish hurry which distinguishes much of the present day carriage painting is only another illustration of sowing the wind and reaping the whirlwind. Even with the quick drying pigments now furnished to the trade, the work of painting "hurry vehicles" has

become so abbreviated that there must naturally be some forcing of coats, one upon another, before absolute dryness of the material can be assured. And when this occurs a formidable list of surface casualties may be expected.

It has been stated that chipping and scaling of paint was a quite noticeable feature in the experience of some Eastern carriage builders. Upon closer examination it will be found that these conditions are responsible for it.

At a glance it will be seen that conditions and circumstances are especially suited to the development of surface flaking and scaling. Why not apprehend these conditions and circumstances and arrange to hold them closer in check, thereby making the paint and varnish structure a permanent investment of labor and material?

Ingenious Repair of a Wheel.

There are times when even the ignominy of a "tow home" could be endured with good grace, and that is when the aforesaid tow is not forthcoming. Though badly disabled by the complete smashing of a front wheel one of the contestants in the recent Australian reliability trial avoided the necessity of either the tow or the "tote" home that seemed inevitable, by an ingenious expedient. The wheel itself was a total wreck, hub, spokes and felly being nothing more than a mass of kindlings, but the steel rim was not alone intact but in good shape. A hard wood plank borrowed from a farmer was cut into two pieces just long enough to force into the rim, the two pieces being placed at right angles so that they crossed one another in the centre. With fifteen minutes' work this provided a "four spoked" wheel of substantial aspect and weight. The addition of a hole through the center completed it and slipping on the axle and screwing up the retaining nut finished the job on which the car ran many miles.

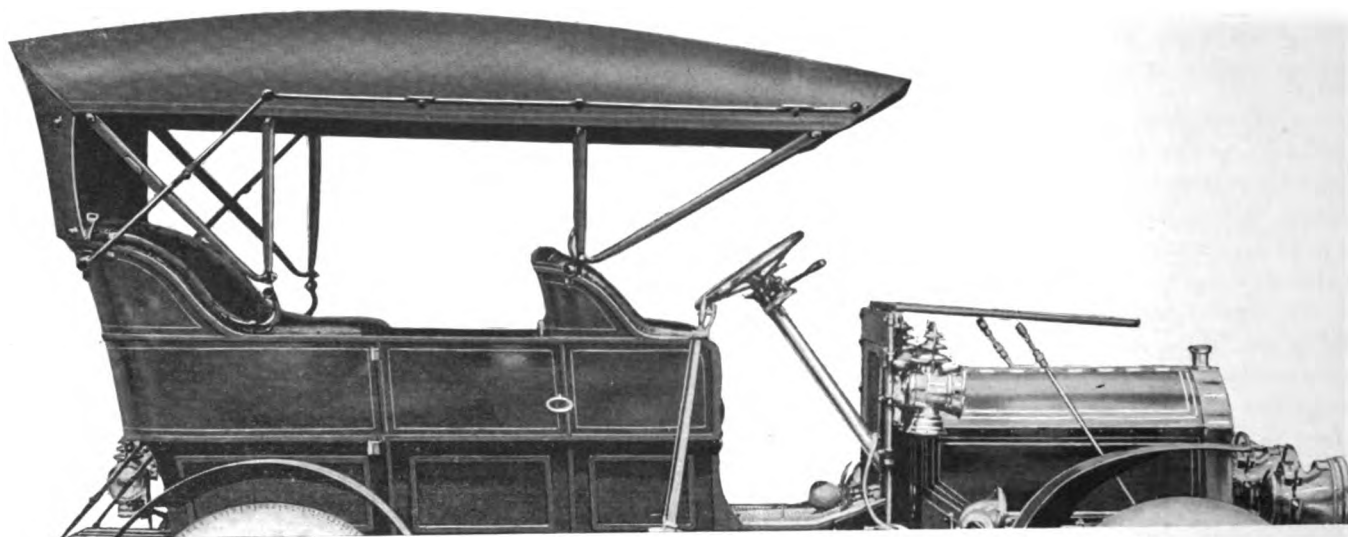
Making Plain the Suspenders.

An enterprising Western paper, which has recently come out in a new dress, presents in the first issue of its new series, an article under the somewhat startling caption, "Use Suspenders for Automobiles," in which reference is made not to those homely articles of wearing apparel to which our forefathers were wont to refer as "galluses," but to the spring equipment of the modern motor car. In this effusion reference is made to a device which "is now marketed by a New York concern—which eliminates the undue amount of resiliency from springs which are limber, and—materially increases the speed of the car." All of which is very enlightening.

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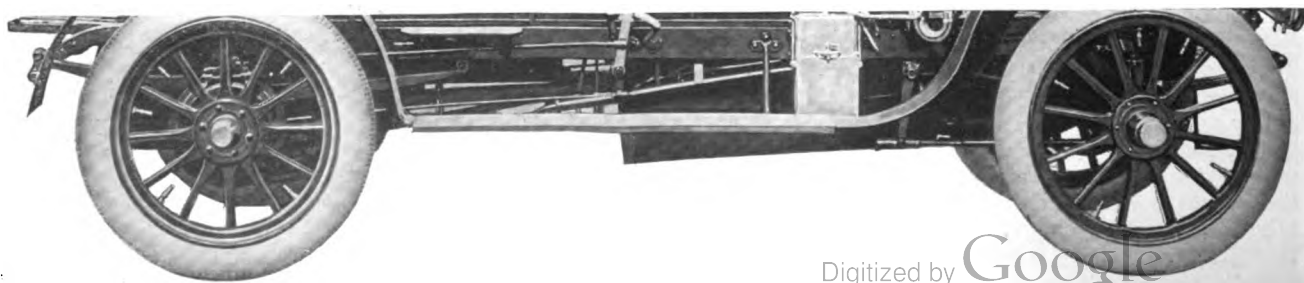
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Utica, N. Y.—Utica Motor Car Co.



The Week's Patents.

809,655. Automobile Body. Allie R. Welch and Fred S. Welch, Pontiac, Mich. Filed May 20, 1905. Serial No. 262,781.

Claim.—1. An inclosed carriage body divisible along the line of the upper edge of the sides of the seats and back of the front and rear seat, substantially as shown and for the purpose described.

809,704. Motor Plow. Henry J. Kyle, Tipton, Ind. Filed June 9, 1905. Serial No. 264,422.

Claim. In a plow of the class described, in combination, a frame comprising forwardly diverging side stringers and having a wheel space formed in the rear portion thereof, a main driving wheel rotatably mounted in said frame in said wheel space, means for driving said wheel, springs attached to the forward extremity of said frame and having laterally disposed necks attached to said side stringers, an axle attached to the under side of said stringers and wheels mounted upon said axle.

809,738. Dust Allayer for Automobiles. William H. Parker, Royaloak, Mich. Filed March 11, 1905. Serial No. 249,568.

Claim.—1. In a motor carriage, a fan and fan casing disposed in the rear thereof, said fan casing having a longitudinal opening transverse to the line of travel of said carriage and adapted to deliver forcibly a sheet of air through said opening, means for varying the opening of said fan case, and means for driving said fan connected with the propelling means of said carriage, substantially as described.

809,740. Lubricator for Crank and Similar Shafts. Thomas S. Patterson, New York, N. Y. Filed January 4, 1904. Renewed November 15, 1905. Serial No. 287,482.

Claim.—1. As an improved article of manufacture, a crankshaft having a bore extending from end to end, the said bore being reduced in the crank arms and continuing through the crank pins and the shaft being provided with outlet ports at its bearing points, the said ports gradually increasing in number as the distance from the filling end of the shaft increases.

809,742. Storage Battery Plate. David P. Perry, Chicago, Ill. Filed June 8, 1903. Serial No. 160,467.

Claim.—1. As an article of manufacture, a storage battery grid, comprising three flat superimposed lead members, the two outer members being provided with a plurality of vertically disposed columns of obliquely arranged apertures of one member being arranged at an angle to the obliquely arranged apertures of the other member and the intermediate member being provided with evenly distributed small openings or perforations.

809,771. Automatic Speed Regulator for Internal Combustion Engines. John G. Callan, Lynn, Mass., Assignor to General Electric Company, a Corporation of New York. Filed October 23, 1903. Serial No. 178,172.

Claim.—1. A speed governing device for explosive engines, comprising means sensitive to fluctuation in speed of the engine for progressively reducing the charges of explosive mixture to a predetermined point and in further combination of the governing action for maintaining the charges constant at said point while simultaneously delaying the ignition of the charges.

809,772. Emergency Governor, John G. Callan and Frederick R. C. Boyd, Lynn, Mass., Assignor to General Electric Company, a Corporation of New York. Filed June 13, 1904. Serial No. 212,274.

Claim.—1. A governor comprising a rotating element and a coiled spring carried thereby having a free end, and a regulator acted upon by the spring.

809,791. Compound Gas Engine. John W. Eisenhuth, Brooklyn, N. Y., Assignor to The Eisenhuth Horseless Vehicle Co., a Corporation of Maine. Filed May 25, 1905. Serial No. 262,301.

Claim.—1. In a gas engine, the combination with high pressure cylinders, of a low pressure cylinder adapted to be operated by the exhaust from the same, piston valves mounted in pockets or recesses formed in the enging casing between said cylinders for controlling the movement of the gaseous mixture, the said valves being arranged in pairs and moving upon each other in said pockets but controlling different ports, telescoping stems secured to the said valves, and cams for engaging the valve stems so as to reciprocate the valves independently of each other, substantially as described.

809,802. Variable Speed Mechanism. Silas L. Heywood, Minneapolis, Minn. Filed June 13, 1904. Serial No. 212,252.

Claim.—1. The combination, with two expansive pulleys, one having sliding heads and the other a sliding and a non-sliding head, the sliding head of the latter pulley being free to recede from the other head by the tension of the belt to contract the pulley, of means for moving the heads of the former pulley in the same direction but at different speeds to expand that pulley.

809,916. Controlling Device for Motor Vehicles. John C. Gallagher, Elmira, N. Y. Filed November 5, 1904. Serial No. 231,511.

Claim.—1. The combination, with a steering shaft and wheel, of a tubular standard through which the shaft passes and a revolvable control rod mounted upon the standard at one side and projecting above the hub of the steering wheel.

810,412. Shaft and Clutch Mechanism. John O. Hobbs, Chicago, Ill. Filed October 22, 1903. Serial No. 178,145.

Claim.—1. In a shaft and clutch mechanism, of the class described, the combination of a shaft comprising a rigid clutch portion and flexible portions, and a clutch member connected to the flexible portions of such shaft and rotatable against the tension thereof in either direction into positive contact with the rigid shaft portion, substantially as described.

810,419. Attachment for Vehicle Wheels.



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George W. Kirkpatrick, Rochester, N. Y. Filed February 3, 1904. Serial No. 191,805.

Claim.—1. The combination with a vehicle-wheel of a flexible band extending over the face of the tire, a device separate from the band and engaging the ends thereof and means for moving it relatively to the rim to tighten the band.

810,420. Attachment for vehicle-Wheels. George W. Kirkpatrick, Rochester, N. Y. Filed August 8, 1904. Serial No. 219,851.

Claim.—1. An attachment for vehicle-wheels embodying a member forming a saddle adapted to be located within the wheel-rim, means for securing the saddle thereto and a band extending over the tread portion of the wheel, means for detachably connecting one end of the band to the saddle and securing member engaging the opposite end of the band and adjustable on the saddle to tighten the band.

809,986. Tire and Other Valves. George H. F. Schrader, New York, N. Y., assignor to A. Schrader's Son, incorporated, New York, N. Y., a corporation of New York. Filed Feb. 6, 1897. Serial No. 622,297.

Claim.—1. In tire and other valves, a valve member comprising a complete valve, consisting of a shell having an egress-duct leading through its outer end, a seat, a valve-chamber, a valve proper in said chamber closing against said seat and an egress-duct, inclosed in its interior, said shell having a smooth outer wall surrounding said chamber and fitting within the interior of a tire tube, having a projecting flange outwardly of said wall, and a packing recess formed in the cylindrical wall of said shell inwardly of said flange, a ring of packing material surrounding said shell and fitting said recess and held against accidental escape by the lower side of said

recess, and a union surrounding said flange for removably coupling said member to an air-tube, and a valve proper within said chamber.

810,030. Cooler. Benjamin Briscoe, Detroit, Mich., assignor to Briscoe Manufacturing Company, Detroit, Mich., a corporation of Michigan. Filed Sept. 28, 1903. Serial No. 174,921.

Claim.—1. In a cooler, a liquid-conduit comprising a flattened tube having the parallel walls thereof in close proximity, and an inwardly-extending rib on the said tube for holding said parallel walls spaced from each other, and a radiating flange sleeved upon said tube.

810,058. Variable-Speed Gear. Peter W. Kane, Mason City, Iowa. Filed Dec. 31, 1904. Serial No. 239,181.

Claim.—1. The combination with a cone of gears consisting of a plurality of parallel gear-wheels and a spiral gear crossing said gear-wheels and forming parts of the latter at the points of crossing, of a moveable gear-wheel, means for guiding the latter automatically to follow the path of said spiral gear, said means adjustable to hold said moveable gear in mesh with either of said parallel gear-wheels.

810,061. Pneumatic Cushion Wheel. Charles A. Lee, Kansas City, Kans., assignor of one-half to Albert J. Holzmark, Kansas City, Kans. Filed June 28, 1905. Serial No. 267,471.

Claim.—1. A wheel comprising a rigid inner portion having an encircling ring, a rigid outer portion having an inner circular ring and an outer encircling ring, a circular pneumatic cushion between the ring of the inner portion and the ring of the outer portion, and radial rods extending through

the pneumatic cushion and the rings in contact therewith and clamping the latter tightly upon the former.

810,087. Carburetter. Stephen P. Sanders, Cupertino, Cal. Filed May 10, 1905. Serial No. 259,738.

Claim.—1. A carbureting-machine having in combination two water-containing tanks, a bell in each tank, a receptacle submerged in one of said tanks and containing liquid hydrocarbon, two tubes fixed to the bottom of the other tank and rising above the water-level thereof, one of said tubes containing an absorbent filling, means connecting the hydrocarbon-receptacle of the one tank with the tubes of the other tank, an air-supply connecting with the tube containing the filling, a pivotally-mounted bucket suspended from the bell and operable in the tube which receives the hydrocarbon from the receptacle, a pipe connection between the two tubes, and means whereby the raising of the bell the bucket is elevated to deliver its charge of hydrocarbon into the pipe connection for saturating the filling of the other tube, said bell, in its descent, forcing the carbureted air out of said filled tube, and means conducting the carbureted air to the bell of the other tank.

810,347. Gas Engine. Edwin F. Porter and Walter R. Whiting, Boston, Mass., assignors to American Rotary Engine Company, Boston, Mass., a corporation of Maine. Filed Mar. 16, 1905. Serial No. 250,368.

Claim.—1. In combination with a cylinder, a piston, two oppositely-rotating crank-shafts, of means interposed between said pitmen and piston for loosely connecting the former to the latter to provide lost motion between the said parts.



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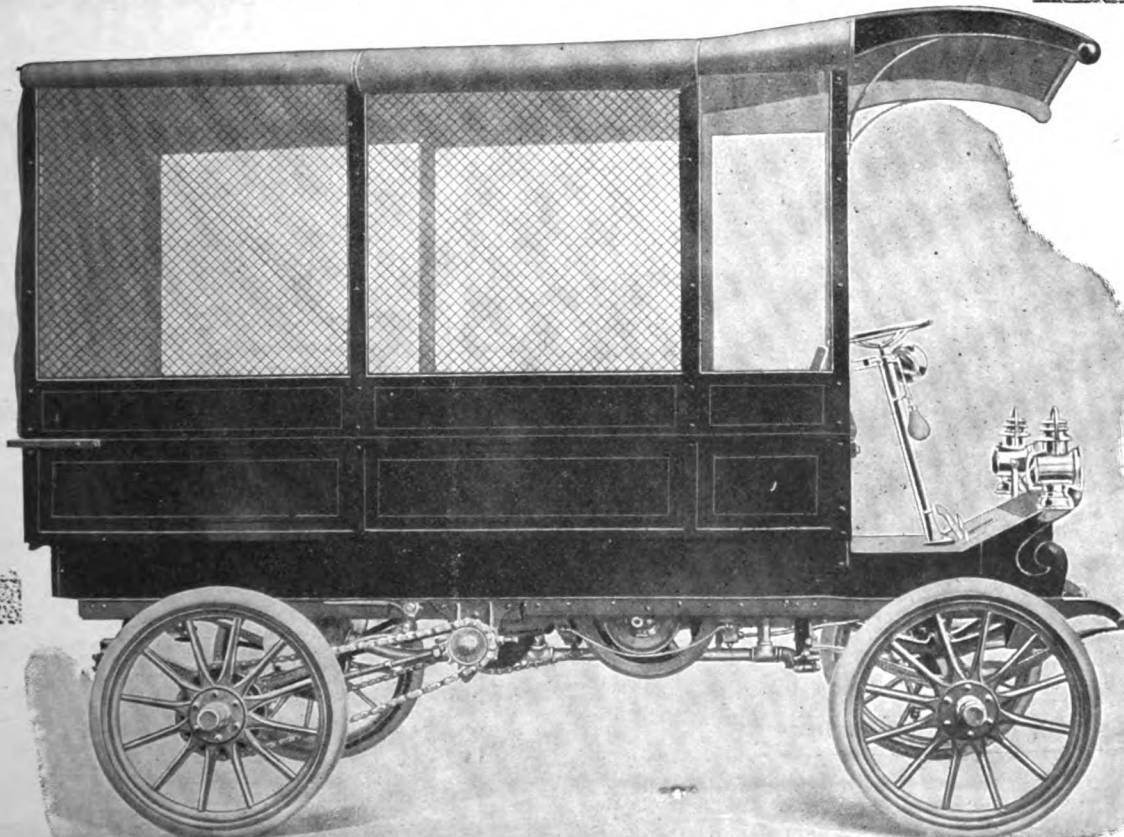
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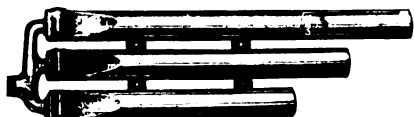
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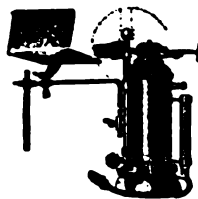
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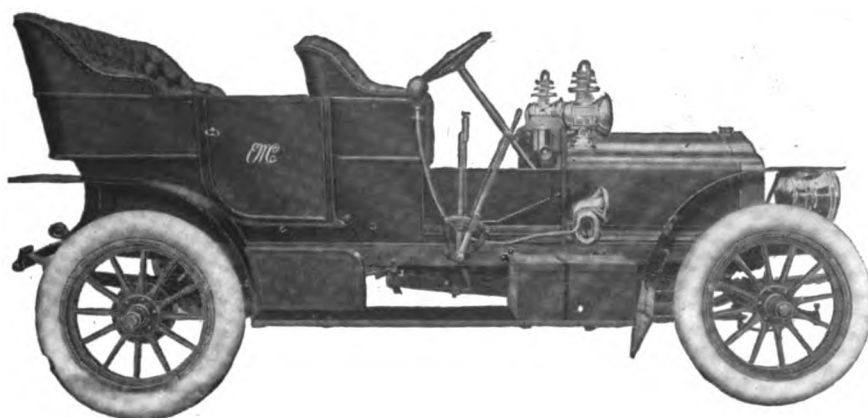
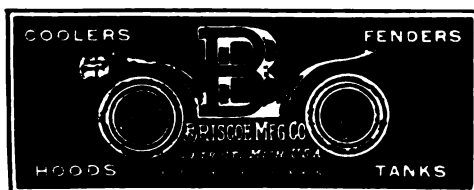
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CYLINDER No. 2.—Just starting down from explosion.

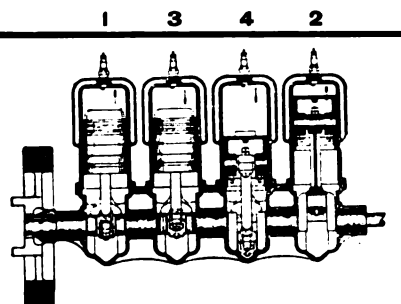
CYLINDER No. 3.—Coming into action before force of explosion in Cylinder No. 2 is exhausted.

CYLINDER No. 4.—Will come into action when piston of cylinder No. 3 is half way through.

A SINGLE FACT IS WORTH A SHIPLOAD OF ARGUMENT.

The single fact we wish to impress upon you is that the Two-Cycle Elmore is the most economical car made. From 15 to 20 parts on every cylinder eliminated. Actually 50 per cent. of working parts eliminated. All inlet and exhaust valves entirely done away with. One two or three cylinders may be cut out at will.

The two-cycle car goes anywhere without change of gear; always a steady unbroken application of power. Can be throttled down on the high speed to two miles an hour or speed along at the rate of 45 miles; will climb steep, difficult grades without strain or effort.



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Members Association Licensed Automobile
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HOUSE PATENT.

An automatic frictional device perfectly controlling the recoil of the springs.
No oil, no air to keep packed.
Attachment easily made.
Connection of the body and running gear flexible.
No oiling or adjusting required.

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Free action of the compression of the springs.

Controls the sharp recoil only.

Makes riding at an increased rate of speed comfortable and saves the springs and tires.

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Tire Economy
Competition

is for the mutual benefit
of maker and user.



We want you to know
all about tires and how
to treat them.

We will pay for your
education.

20 per cent allowed for
old tires of any make.

PENNSYLVANIA RUBBER CO. JEANNETTE, PA.

Persistent and conscientious adherence to one idea—and that idea one which we have demonstrated to be the correct one—year after year has made the Premier Motors the efficient, dependable ones which we have always built.

This, in conjunction with our splendid construction throughout the car, makes the Premier, "The Quality Car," stand out boldly among its competitors, evidencing its worth in its pressed steel frame, 20-24 H. P. motor, selective type, three speeds forward and reverse sliding gear transmission, shaft drive, buoyant but firm full elliptic springs, I beam front axle efficient brakes, perfected lubricating system, light weight, high power, great speed, pleasing design, comfort and elegance of equipment. These features CAN'T HELP appealing to those interested in the subject of motor cars.

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**THE CAR WITH A
REPUTATION
BEHIND IT.**

DOUGLAS ANDREWS

Selling Agent,

1623 Broadway, New York

THE MOTOR WORLD.

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE
AND KINDRED INTERESTS

Volume XII.

New York, U. S. A., Thursday, February 8, 1906.

No. 2

ENTER THE A. E. V. M.

Electric Vehicle Makers Organize and Incorporate—The Purposes which the Association will Serve.

"To foster trade, to reform abuses, and to promote harmony in the business," the Association of Electric Vehicle Manufacturers was, on Monday last, incorporated under the laws of New York State.

Robert M. Lloyd, Electric Vehicle Co., New York City; George Pope, of Hartford, Conn., Pope Mfg. Co.; M. L. Goss, Baker Motor Vehicle Co. and J. W. McCrea, McCrea Motor Truck Co., Cleveland, Ohio; T. W. Goodridge, Studebaker Auto Co., of South Bend, Ind. and James MacNaughton, James MacNaughton Co., of Buffalo, N. Y., are named as the incorporators.

The movement leading up to this "taking out of papers" has been so quietly conducted that the notice of the issuance of the certificate of incorporation was the first that was generally known of it. Indeed, the organization really will be not wholly completed until late this week when a meeting will be held in Chicago at which officers will be elected.

When one of those concerned with the association was asked exactly what the getting together implied, he said:

"It means just what the notice of incorporation states and merely reflects the spirit of the times. We all have interests in common which can be better served by becoming personally acquainted and pulling together rather than by remaining strangers or half strangers to one another and pulling each a different way. The association has no capital stock, no price or prices or no patent or patents to exploit and will have no office, no manager, no salaries. It is designed chiefly to promote acquaintance and good feeling and is purely a defensive organization, that is to say, we will be prepared to act together should occasion arise. The objects are such as we believe will appeal to all reputable makers of electric vehicles and we believe they will be with us. The door has not been and will not be closed to any of them."

Diamond again Abreast of Demand.

Figuratively speaking, the Diamond Rubber Co. has resumed business. For three months the Akron company has been unable to promptly deliver some of the most popular sizes of its tires and a lot of "fretting and stewing" has resulted. The installation of additional equipment, which during this period has been responsible for some of the delay, has been finally completed and the big plant is again humming merrily in all departments. The stocks of the Diamond branches have been fully replenished, the "famine" is over and immediate deliveries and satisfied smiles are once more the rule.

Alden to go with Timken.

The well-known automobile engineer, H. W. Alden, formerly with the Electric Vehicle Co., and latterly "well up" in the Pope Mfg. Co.'s commercial vehicle department, has engaged with the Timken Roller Bearing Axle Co., Canton, Ohio, and will be attached to its engineering staff. He will remove from Hartford, Conn., to Canton, Ohio, on March 1st.

Moskovics Joins Brandenburg Firm.

F. E. Moskovics, formerly sales manager of the Acme Motor Car Co. and latterly traveling representative of the Continental Caoutchouc Co., has been admitted to partnership in the distributing firm of Brandenburg Bros. & Alliger, of New York and Chicago. Moskovics's new duties will keep him "swinging around the circle" as of yore.

Chapin Resigns Olds Sales Management.

Roy D. Chapin, sales manager of the Olds Motor Works, has tendered his resignation—a proceeding that will cause widespread surprise, as he was considered almost an Olds "fixture." Except that he may decide to rusticate for a short period, Chapin's plans for the future are uncertain.

Des Moines Raises Funds for Kitto.

W. H. Kitto, formerly of the Simplicities Automobile Co., of Middletown, Conn., has at last induced the residents of Des Moines, Iowa, to subscribe the \$30,000 needed to aid him in the establishment of a factory there. The Motor and Components Mfg. Co. is the style under which it will operate.

MORE BASIC PATENTS UP

This time a Batch of Five—Suits Involving Two of them Already Started—A. L. A. M. Dickering for the Lot.

Two more alleged basic patents unexpectedly have appeared on the scene, No. 657,650, commonly termed the "plate patent," and covering what is known as the gridiron segment, and No. 662,401, covering the sliding gear type of transmission. Both patents were issued late in the year 1900 to Leonard N. Dyer, a member of the firm of Dyer & Dyer, formerly patent attorneys in Washington, but now of New York.

The full importance of the patents came to light only last week when Dyer & Dyer filed suit in the United States Circuit Court for the Southern District of New York against the Lozier Motor Company for alleged infringement of both patents. It then became known that in December last, suits on the same counts had been brought against the Auto-Import Company, who handle the Rochet-Schneider car in this country, and also against Delancy Nichol, a user of a Rochet-Schneider car and a former District Attorney of New York.

It is now asserted also that fully 60 per cent. of the automobile manufacturers of this country are making use of the devices covered by these patents and that action against them is probable, although when seen by a Motor World man on Tuesday, a member of the firm of Dyer & Dyer intimated that proceedings against the users of infringing cars was even more probable. At the same time he did not deny a rumor that his firm was negotiating for or had practically completed the sale of the patents to the Association of Licensed Automobile Manufacturers, in fact, he admitted, such negotiations, but it was only by a process of elimination that they were brought to the door of the A. L. A. M. The legal gentleman even seemed to regret that the negotiations had progressed so far that retreat was impossible, this remark apparently being a slip of the tongue.

Patent No. 657,650, issued September 11,

1900, applies to an "Automobile Vehicle," the particular feature on which the suits are based, constituting the ninth claim, viz:

"In an automobile vehicle a transmission gearing therefor the operating handle, or the fixed guide plate having recesses substantially as set forth," which means substantially the slotted guide plate for the gear changing lever, commonly styled the gridiron segment. The patent shows it applied to a belt driven vehicle.

The other patent involved, No. 662,401, was issued November 27, 1900, and covers "Gearing for Automobile Vehicles," the sliding gear being described in claim 12, as follows:

"In an improvement in gearing, two shafts parallelly arranged, a gear rigidly fastened to one shaft, a second gear in mesh with the first gear but free to rotate about its supporting shaft, a clutch member upon said gear, a third gear rigidly supported upon one side of the shafts, a loose gear adjacent thereto, normally inoperative intermediate mechanism interposed between said gear and its supporting shaft, a gear keyed to the other shaft but capable of lateral or endwise movement thereon, a clutch member on one face of the fourth gear, and a projection or hub upon the opposite face, substantially as set forth."

It appears that Leonard H. Dyer also has four other patents which his firm is inclined to believe cover basic principles, but the status of which they admit is not fully established, although they seem to be included in the negotiations with the A. L. A. M. These patents are as follows: Nos. 643,595, Feb. 3, 1900; 662,400, Nov. 27, 1900; 676,223, June 11, 1901, each of which applies to features of transmission.

The devices covered by these patents were all conceived by L. H. Dyer in 1894-5, when he was residing in Chicago Heights and engaged in experimenting with a self-propelled vehicle, to which they were applied. Of course, their value was not appreciated at the time and even after the patents were issued their importance was not fully realized. About two years ago this dawned on the Dyers and they entered into negotiations with several manufacturers, but one of whom, however, took out a license—the Electric Vehicle Company. It continued in force for one year, when owing to a certain amount of dissatisfaction on one side or the other, it was allowed to lapse, and has not since been renewed.

End of the Searchmont Plant.

A force of men began last week to tear out the machinery and otherwise dismantle the plant at Trainer, Pa., formerly occupied by the Searchmont Automobile Co. When the plant was sold sometime ago, it was rumored that a company would be formed to manufacture engines for gasoline cars and also to build a special car, but these things have not materialized, and the place that once gave employment to hundreds of workmen will soon be no more.

In the Retail World.

L. W. Wright, the South Norwalk, Conn., carriage man, has taken possession of his new garage, a three-story brick structure, 63x61 feet.

William Ashenberg, Perth Amboy, N. J., is about to begin the erection of a garage in that place. It will occupy the vacant lot on Smith Street near McClellan.

Christopher F. Weeber has purchased five lots at Central avenue and Bradford street, Albany, N. Y., where he intends to build an automobile factory. Ground was broken last week.

F. W. Howe, the Sidney, (N. Y.), dealer, has purchased the lot adjoining the Phelps building at that place, and will erect a three-story garage, 40x69 feet. It will be ready for occupancy April 1.

Ground has been broken for the new garage to be occupied by the Somerville Automobile Co., of Somerville, Mass., which was incorporated last week. It will be located at Boston Avenue and Broadway and will measure 40x80 feet.

Browne & Schmidt, Paterson, N. J., have under process of construction a commodious machine and repair shop at 201-203 Paterson Street, of brick, two stories high, and measuring 50x75 feet. They will move from 10 Lee Place, on March 1.

The Ottawa (Ill.) Motor and Cycle Co., of which J. L. Bane and Jacob C. Zeller, are the leading spirits, have bought out the business of the late Max Schultz. The garage will undergo several improvements before the new proprietors move in.

Another agency is to be opened in Boston this week. This is the Northern, and it will be handled by Charles Haigh, formerly with A. T. Fuller, who was until this year agent for the Northern. Haigh has leased space in the Motor Mart in Park Square.

The Piedmont Motor Car Co., Atlanta, Ga., have just taken on the agency for the Pope-Waverly electrics and will handle them apart from their gasoline interests. To that end they have acquired the show room at 88 North Pryor Street, formerly occupied by the Waverly Automobile Co.

Although Wheeling, W. Va., boasts of numerous automobiles it has not a garage, but this present deficiency soon will be filled by Richard H. Mahlke, who owns a car and is proprietor of a large machine shop. Mahlke will convert the first floor of his establishment into a garage and will build an addition for storage purposes.

The Piedmont Automobile Co., formerly the Southern Automobile Co., have taken possession of their new garage at 193 North Pryor Street, Atlanta, Ga., and have also let contracts for the construction of a salesroom, 40x90 feet, on North Pryor Street, close by the garage. For 1906 the Piedmont people are handling the Ford and the Maxwell cars.

The Electric Automobile Co., has been organized in Savannah, Ga., with \$20,000 capital and will take over the business of

the Electric Supply Co., of that city. Electric vehicles only will be handled, a garage with 12,000 square feet of space, being now in process of equipment at the corner of Bull and Bryant streets. The Pope-Waverly will be the concern's leader.

The Aurora Automobile Co., which incorporated some time ago at Aurora, Ill., and opened its stock subscription books, but did little else, is reported to be trying to sell its patents on the doctor's runabout, devised by Dr. D. D. Culver, to Chicago parties. The men who endeavored to sell stock in the automobile company have now formed the Aurora Mines Co.

As soon as projected improvements are made the Eastern Automobile Co., Philadelphia agents for the Peerless car, believes it will have the best equipped garage in the city, if not in the State. The present site occupies Nos. 326 to 332 North Broad Street, but the company has acquired the adjoining property to No. 340, and is converting it into one large salesroom.

The Automobile Supply Co., of Chicago, last Friday filed a creditor's bill in the Superior Court against the Yale Automobile Co., of 1,413 Michigan Avenue, that city, asking that the defendant company be dissolved and its assets sold for the benefit of its creditors. The supply company asserts the defendant company is indebted to it for \$280. The Kirk Manufacturing Co., also a complainant, asks \$707.

George J. Bohnet, who has the agency in Saginaw and Bay City, Mich., and also in fourteen counties of that State for the Reo cars, will shortly open a well-equipped salesroom and garage at 114-116 South Franklin street, Saginaw. Bohnet was for four years manager for W. K. Prudden & Co., Lansing, Mich., until last September, when he acquired the business, re-selling it recently to Wall & Wurgis, to look after the Reo interests in other counties.

Connecticut Cuban Company to Increase.

The West Indies Transportation Company, a corporation organized under the laws of Connecticut and doing business in Havana, held its annual meeting in Hartford last week, at which Thomas Malcolm of Hartford, was re-elected president, and J. Condit Smith and H. B. Geuchius, directors. The company runs motor busses and does a general automobile business in Cuba and as it is planned to extend its operations, handling freight and express as well as passengers, it was voted to submit to the stockholders a proposition for an increase of capital stock necessary to acquire additional machines.

Thery Becomes a Manufacturer.

Advices from abroad state that Leon Thery, twice winner of the Bennett cup, has left the Richard-Brasier firm and will himself engage in the manufacture of automobiles. They will be styled the "Thery," of course.

GAVE UP TO GOODYEAR

\$150,000 Claimants Withdraw Suit, Pay Bills and are Able to do Business Again.

The New York-Broadway Rubber Tire Co. is very much wiser than it was two months ago. Among other things it has learned that instituting suits for even \$150,000 worth of damages does not always accomplish its purposes.

It did that sort of thing with the Goodyear Tire and Rubber Co., Akron, Ohio, and had all its labor for its pains. When the Goodyear people really "got busy" they acted with such vigor and dispatch, that the New York-Broadway concern finally was compelled to cry "enough," which means that it has paid the Goodyear accounts, withdrawn the \$150,000 suit, and, so to speak, promised to "be good" hereafter.

It will be recalled that the New York-Broadway Co., which handled the Goodyear products in the Greater New York district, discovered that it had been "damaged" to the extent of \$150,000 at just about the time the Goodyear Tire and Rubber Co. began pressing for the payment of an overdue note; to secure the alleged claim the Goodyear property in New York was attached. The attachment was promptly bonded and released and immediately the Goodyear interests faced about and delivered an uppercut in the form of a suit for the amount of the note which they held and also by attaching all the New York-Broadway assets in sight, which included stores in New York and Brooklyn, bank accounts, etc.

The New York-Broadway Co. was unable to obtain bonds to release the attachments and as a result they were "tied up" for a period of seven weeks or until they settled with Goodyear. Before doing so, it is alleged that they quoted all manner of cut prices on Goodyear tires in the effort to prove damage and also that they sought to prove the Goodyear Co. a foreign corporation which had executed the contract with them in New York whereas it was made and signed in Akron, Ohio. These allegations were set up in the vain effort to have the attachments vacated. The Goodyear people, however, resolutely refused to be bluffed or dissuaded and had ready for use two additional attachments. They proved unnecessary, however, as the New York-Broadway Co. soon "saw a light" and wilted. They paid not only the Goodyear note, which was overdue, but also two others which had not matured and likewise discontinued the \$150,000 suit which had been filed in the name of one of their employees. It was not until then that the attachments were released and that they were again able to come into possession of their stores and transact business.

The Week's Incorporations.

Joliet, Ill.—Stenhart-Jensen Automobile Co., under Illinois laws, to deal in automobiles. Corporators—E. W. Stenhart, C. F. Jensen and W. H. Whittemore.

St. Louis, Mo.—Union Automobile Co., increased capital stock from \$15,000 to \$35,000; all increase paid. Assets, \$35,000; liabilities, \$2,568.61.

New York City.—New Century Auto Co., under New York laws, with \$1,000 capital; to conduct a garage. Corporators—William B. Franke, David Lamb and Frederick L. Kelley, Jr.

Chicago, Ill.—Cullman Wheel Co., under Illinois laws, with \$15,000 capital; to make wheels, sprockets, etc. Corporators—A. A. Worseley, N. H. Hanchette and J. H. Whitefield.

Buffalo, N. Y.—James MacNaughton Co., under New York laws, with \$10,000 capital; to make motors. Corporators—James MacNaughton, Charles S. Chamberlain and M. D. Ashford.

Morristown, N. J.—Morristown Garage Co., under New Jersey laws, with \$50,000 capital; to deal in and repair automobiles. Corporators—Thomas B. Reid, John V. Wise and Alexander Reid.

Wilkes-Barre, Pa.—Wyoming Valley Motor Co., under Pennsylvania laws, to conduct a garage. Corporators—Ambrose West, Laning Harvey, C. E. Stegmaier, James Cool and Charles L. Ashley.

Des Moines, Iowa.—Motor Components Co., under Iowa laws, with \$30,000 capital; to make automobiles. Corporators—B. S. Walker, W. H. Kitto, G. C. Hubbell, H. G. Guer, R. McCutcheon and F. C. Hubbell.

New York City, N. Y.—The Rossell Co., of America, under New York laws, with \$100,000 capital; to make engines, motors, etc. Corporators—Eugene N. Robinson, Manuel de Caserte and Charles M. Eaton.

New York City.—Constantine Storage Battery Co., under New York laws, with \$8,000 capital; to make storage batteries and ignition apparatus. Corporators—E. B. Constantine, W. Hunet Smith and John A. McEwan.

Trenton, N. J.—Walter Auto Car Co., under New Jersey laws, with \$1,000,000 capital; to make automobiles. Corporators—Col. A. L. Kuser, William Walter, R. V. Lindabury, John L. Kuser, R. V. Kuser, Fred Kuser, Gen. C. E. Murray, F. W. Roebling, 2d; A. C. Reeves, Mahlon R. Margerum, Eisle & King, Herman Unger, and Christian W. Stengle.

New York City, N. Y.—Association of Electric Vehicle Manufacturers, under New York laws, to foster trade, reform abuses in business and to promote harmony in the trade; with no capital. Directors—Robert M. Lloyd, of New York; George Pope, of Hartford, Conn.; M. L. Goss and J. W. McCrea, of Cleveland, Ohio; T. W. Goodridge, of South Bend, Ind., and James MacNaughton, of Buffalo, N. Y.

WALTER GOES TO TRENTON

New Jersey Capitalists Reorganize and Remove the New York Company.

What probably will prove a notable addition to Trenton's industries was its securement last week of the Walter Auto-Car Co., formerly the Walter Automobile Co., of New York City, makers of the Walter gasoline touring car. The Walter business was renamed, incorporated and recapitalized under the laws of New Jersey as the Walter Auto-Car Co., with \$1,000,000 capital, of which \$300,000, the amount on which business will be commenced, already has been paid in.

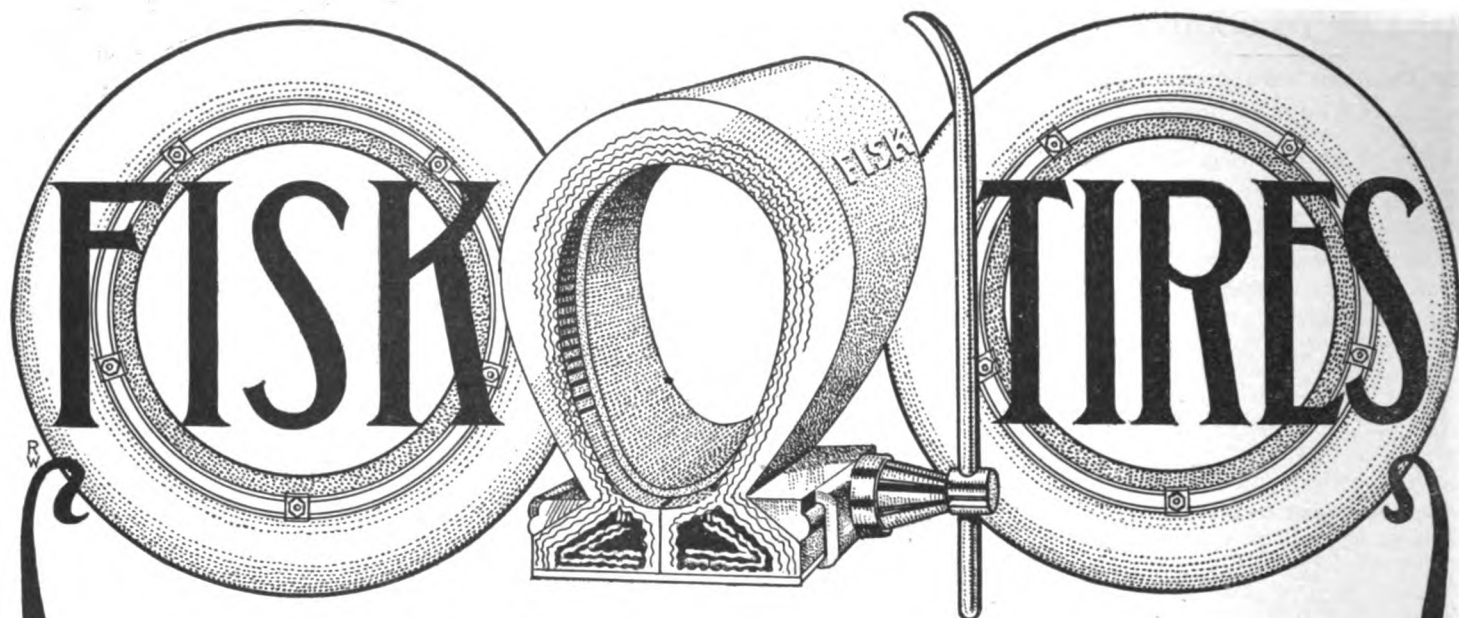
At present the Walter car is made in New York, but the factory in this city will be abandoned and a large building erected in Trenton. The old plant of the Consumers Brewing Company, near the Pennsylvania Railroad shops, has been acquired, and will be used as a part of the factory. It is expected that work on the new plant will be commenced at once. The old Walter Automobile Co., has been turning out fifty cars of one model a year, but the reorganized company expects to increase this output to five hundred cars, which will comprise three models of 30, 40 and 50 horsepower, respectively.

Among those who are interested in the new company are William Walter, Colonel A. R. Kuser, R. V. Lindabury, John L. Kuser, R. V. Kuser, Frederick Kuser, General C. E. Murray, F. W. Roebling, Washington A. Roebling, 2nd; A. C. Reeves, Mahlon R. Margerum, Eisle & King, Herman Unger and Christian W. Stengle.

Odd Origin of a Fire Report.

The Union Drop Forge Co., of Chicago, is in position to know that the Motor World is closely read and also to realize that it makes a difference in what manner of publication an item appears. It was rather an unusual and unfortunate chain of circumstances that brought about this result. Nearly all of the Chicago dailies gave space to a report that the Drop Forge works had suffered a disastrous fire, the item of news also being telegraphed to all the important commercial papers, in none of which did it attract notice. When it was printed in the Motor World, however, things happened.

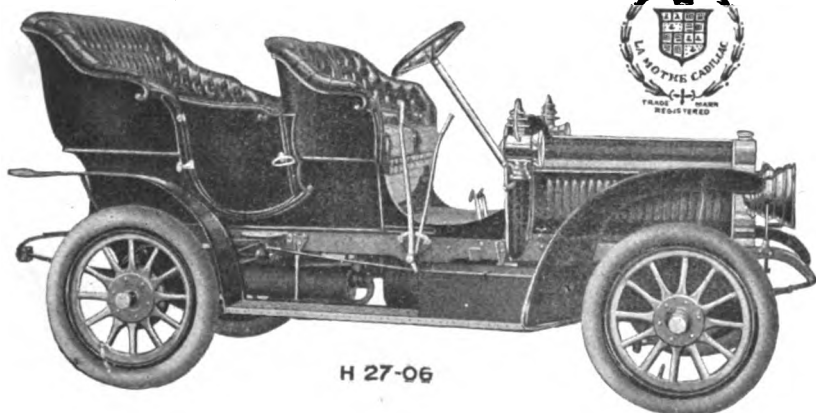
The Union Drop Forge Co. does work for a number of automobile manufacturers and immediately after they received the Motor World, letters, telegrams and long distance telephone messages poured in on the Chicago drop forgers. They were at some pains to make plain that they had suffered no fire whatever, which really was the case. What happened was that when a fire occurred on their street, the alarm was sent in from their office and straightaway the fire reports put them down as the victims—a mistake that happens not once in a lifetime.



- ¶ Have withstood all competition as the Safest, Most Reliable, Long Wearing Tires made.
- ¶ They combine all the best features of other makes with many marked special virtues of their own.
- ¶ Their absolutely safe rim attachment is undisputably a veritable accident insurance. And they have a Quality peculiar to themselves, given by combining only the best materials with peculiar care in each one—as if our very reputation depended upon the service it rendered.

Write for article on tire construction.

THE FISK RUBBER CO., Chicopee Falls, Mass.



H 27-06

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MODEL H

Price \$2500, F.O.B., Detroit

(LAMPS NOT INCLUDED)

A car which not only upholds the reputation of "Cadillac Quality" but adds increased significance to that universally recognized standard of excellence.

MODEL H SPECIFICATIONS.

Passenger capacity	-	-	-	Five persons.	Wheels and Tires	-	-	-	32 x 4 inches	Horse Power	-	-	-	-	30
Wheel base	-	-	-	100 inches.	Motor—Four cylinder	-	-	-	4 3-8 x 5 inches.	Wei, ht	-	-	-	-	2400 lbs

Price \$2500 list.

MODEL H RUNABOUT

Same as above but with Runabout body, price \$2400 list.

DRIVE—Direct shaft with specially ground and hardened gears.

BEARINGS—Genuine Hess-Bright ball bearings throughout including axles, front wheels, transmission and engine thrust bearings.

TRANSMISSION—Cadillac planetary type, specially cut and hardened gears, three forward speeds and reverse.

STEERING GEAR—Our own new design, positive and reliable in its action.

BRAKE—Double acting, expanding and contracting on drums on rear wheels. Sufficiently powerful to lock wheels almost instantly.

CONTROL—Remarkably effectual by instantaneously acting governor.

LUBRICATOR—Special Cadillac type, mechanical pump feed, quantity regulated by speed of engine.

COMMUTATOR—New and efficient design placed horizontally on vertical shaft with oil container.

CARBURETOR—Special type for four-cylinder motor, proven by exhaustive tests to be most effectual and economical.

RADIATOR—Honeycomb pattern of great capacity and exceptional cooling efficiency.

SPRINGS—Semi-elliptic front and three quarter elliptic rear, affording extreme ease and comfort.

BODIE—Exclusive Cadillac design of unusual elegance, upholstered in hand buffed leather over steel coil springs and genuine curled hair.

CADILLAC MOTOR CAR CO., - - - Detroit, Mich.

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NEW YORK FEBRUARY 8, 1906.

About the Gas Turbine.

For many years the turbine engine has been a sort of will o' the wisp which has lured numerous inventors on to their ultimate undoing. In the course of development of the gas engine, this fantasy has beset many, and they have labored long and in vain to perfect a motor in which the high potentiality of the burning products of combustion should be directly converted into kinetic energy without the intervention of any such mechanical medium as a reciprocating piston and connecting rod. Theories in plenty, have been worked out, and not a few patents have been taken on devices which never got beyond the experimental stage.

While the steam turbine has been verging toward a successful issue, the combined pressure bred by its example and the demand for a rapid running motor of even torque such as would be suitable for use in motor cars, has developed a score or more of motors primarily intended for this specific work, but destined never to run to advantage.

The true reason why the gas turbine has never yet been produced, and the difficulty which, from the standpoint of the present day engineer seems insurmountable, is that the temperatures produced by the burning of carbonated vapor frequently reach a point in excess of that of the fusing point of platinum. Obviously, no structure composed of a series of comparatively thin plates and unprovided with a cooling medium can be made to withstand such a high degree of heat. On the other hand, to in any way cool the gases before utilizing them in the turbine, involves the loss of a proportionate amount of their potential energy. Hence the inventor is beset by the devil and the deep blue sea, and finds so great a number of difficulties, both mechanical and theoretical, in his way that his progress is well nigh cut off at the outset.

According to the idea of Dougald Clark, whose word in matters pertaining to the gas engine is not, in all probability, to be gainsaid by any living man, the three points to be settled before the gas turbine can be brought to really commercial issue, and which involve the solution of three problems, which in themselves, are enigmas of no mean quality, are: first, the construction of an efficient turbine compressor, "comparable in efficiency with cylinder compression"; second, an efficient nozzle expander, by means of which the adiabatic expansion of the gasses may be brought about successfully; and third, an efficient form of turbine blade through the medium of which the kinetic energy of the gasses may be converted into mechanical work without an attendant increase in heat due to the molecular disturbance if the gasses in impinging on the blades. Here, then, are two considerations distinct and separate from those which affect the structure of the blades themselves, or the turbine, as it appeals to the lay mind. Only one of these, and the third consideration which is prescribed, are being solved by the constructors of the steam turbine of the day, and these two are by no means as yet wrought out to the satisfaction of the steam engine builder.

In the use of steam as a working fluid, energised by the judicious use of a small proportion of burning gas, Mr. Clerk thinks he sees certain attractive possibilities owing to the evolution of but a small percentage of the heat otherwise obtained, yet he is by no means certain that the solution of the gas turbine is to be found even here. And this, is largely dependent on the results to

be obtained from further study of the steam turbine in its more advanced form. Hence, it is to be concluded that the future of the gas turbine is largely dependent on the development of its steam driven relative, and that until the latter type of prime mover has been brought to a more practical form than it has arrived at, up to the present time, it is not to be considered seriously, and that even then its possible commercial utility is largely a matter of question.

To the average man who does not boast a large amount of scientific knowledge, the gas turbine may well be considered a practical impossibility for the present. What it may become at some time in the future, is not a matter of very great moment in this day of live possibilities. The point is, that it cannot be made to run to-day.

Shortcoming of Catalogues.

If any one of the side issues of the automobile business needs mending, it is beyond a doubt the method of cataloging cars. For while it is doubtless true that more money is being spent on trade literature to-day than ever before, and while the printers' art is being called into requisition in all its scope to produce the most tasteful effects known to the ingenuity of man; and while the result is highly pleasing and creditable from the typographical point of view, still in the composition and arrangement of the subject matter, there is room for most decided improvement. Presumably, the function of the catalogue is either that of a price list or a descriptive argument in favor of the goods which it advertises. If it fails to accomplish either one or the other of these purposes, then it may be taken as falling short of its mark.

In the literature of the average motor car maker of the day are to be found as a general thing: a few pretty pictures of a car in an attractive setting of green leaves, or plunging through a monstrous snow-bank; a dreamy paragraph or two on the pleasures of motoring in the abstract, with the name of the maker brought into copious requisition; a half-tone or two of some of the non-committal features of the machine, such as the gear box and the off side of the motor; and a list of specifications which are the merest generalities in disguise. The special features which serve to differentiate the car from others of its class, are left to be imparted to the prospective buyer by the agent in a sort of genial confidence. The points which the inquisitor wishes to learn that he may decide between this machine, and another, are left for him to de-

termine by close questioning or by sheer inference, and instead of the detailed information which he would have, the reader is enlightened by clauses such as these: "Levers....Brass Plated, Steering WheelFixed" and so on to the end, when he gives it up, and wonders what the car really is like after all.

As the real intent of the catalogue is to answer the inquiries of a would-be purchaser, and to serve as an argument for the machine as against others of its class, it becomes a means to an end, and a vehicle to carry the interest from the abstract description on the page to the concrete illustration in the car itself. That being the case, if the reader be at all discerning, he is seldom carried beyond the stage of casual interest if he is forced to rely solely upon statements to the effect that the machine is thoroughly up-to-date in every way, that it is constructed of the very best materials obtainable, and that the workmanship is in every way the best obtainable. For to judge from a perusal of the average pamphlet of the conventional sort, it is immaterial what car a man buys, each being held up to view as the best, and the proposition generally speaking, left unproved.

It is true enough that there can be no such thing as a catalogue sale in the automobile business, the mail order trade being confined to wares of lesser value, yet what can be the intrinsic value of the catalogue unless it furnish a basis of comparison, and actually tell something of the car as a distinctive individual of a class? The marked tendency toward a general unification of design for all cars of the same type which is making itself so prominent this year, involves a narrowing down of the line of demarkation between the various machines. This, in turn, makes it harder than ever before to differentiate between them in few words, and involves a closer description of the cars in order to make this possible. The true art in drawing up a description of this sort lies not so much in excluding certain details which must be sought after by the reader, as in so wording the matter which is used that it cannot fail to interest him, and whet his appetite for a more complete investigation than is possible from merely glancing over a page or two of print.

The catalogue as an argument, then, should specify all that is distinctive about the car, all that is novel, and all that is especially worthy. It should be an answer to a train of unanswered questions, so

worded that the questions themselves and others as well which are unanswered, shall formulate themselves in the mind of the reader without effort on his part. In it, there should be little room for wise generalities, and flattering encomiums. They are a part of a legitimate follow-up system, are proper in their place, and are not without their contingent value, but they do not belong in the catalogue. If brevity is the soul of wit, then the descriptive brochure should be the epitome of conciseness, yet above all, it should be comprehensive.

Striving for Variable Strokes.

More than one attempt has been made in the past to contrive a variable stroke motor in which the four-cycle principle should be carried out to greater advantage than is possible in the ordinary type of motor having equal piston strokes for each event of the cycle. The most recent of these is an English device, in which the sun and planet method of gearing is used in conjunction with an eccentric crank pin, to give the desired result in the travel of the piston.

The stub end of the connecting rod is made unusually large, and embraces an enlarged crankpin which is eccentrically mounted on an inner pin which serves it in the way of a bushing. This sleeve or bushing is made to revolve at half the speed of the crank shaft by means of planetary gearing, so that the position of the piston with relation to the centre of the main crankpin, is constantly changing. The effect of this is to secure a variable travel for the piston, two long strokes being in every case followed by two of the shorter length.

In this way, the stroke which corresponds to the explosion of the charge is made very long with the result that the piston uncovers a series of ports in the cylinder wall at the end of its travel, thus securing an auxiliary exhaust. Similarly, the succeeding in-stroke carries the piston to the head of the cylinder, thus completely clearing the cylinder of its contents. The suction stroke, on the other hand, is shorter, and not of sufficient length to permit the auxiliary ports to be uncovered, while the compression strokes, leaves a properly proportioned volume in the upper part of the cylinder to hold the charge which is to be fired. Thus a clean exhaust with little or no back pressure is obtained.

It is perfectly obvious that by means of a variable stroke, the functions of the cycle can be performed more perfectly than by

COMING EVENTS.

February 3-10—Chicago Automobile Show at the Coliseum, under auspices of the N. A. A. M.

February 3-10—Washington Automobile Show, under auspices of the Washington Automobile Dealers' Association, Inc.

February 9, Chicago—Annual meeting American Motor Car Manufacturers' Association.

February 11-12—Second Annual International Road Races at Havana, Cuba.

February 12-17—Detroit Automobile Show, under the auspices of the Tri-State Automobile and Sporting Goods Association.

February 19-24—Cleveland Automobile Show, under auspices of the Cleveland Automobile Dealers' Association.

February 24-March 3—Philadelphia Automobile Show, under auspices of the Philadelphia Automobile Trade Association.

March 5-10—Buffalo Fourth Annual Automobile Show, under auspices of the Buffalo Automobile Trade Association.

March 10-17—Boston Automobile Show, under auspices of the Boston Automobile Dealers' Association.

April 2-7—Toronto, Ont., Automobile Show.

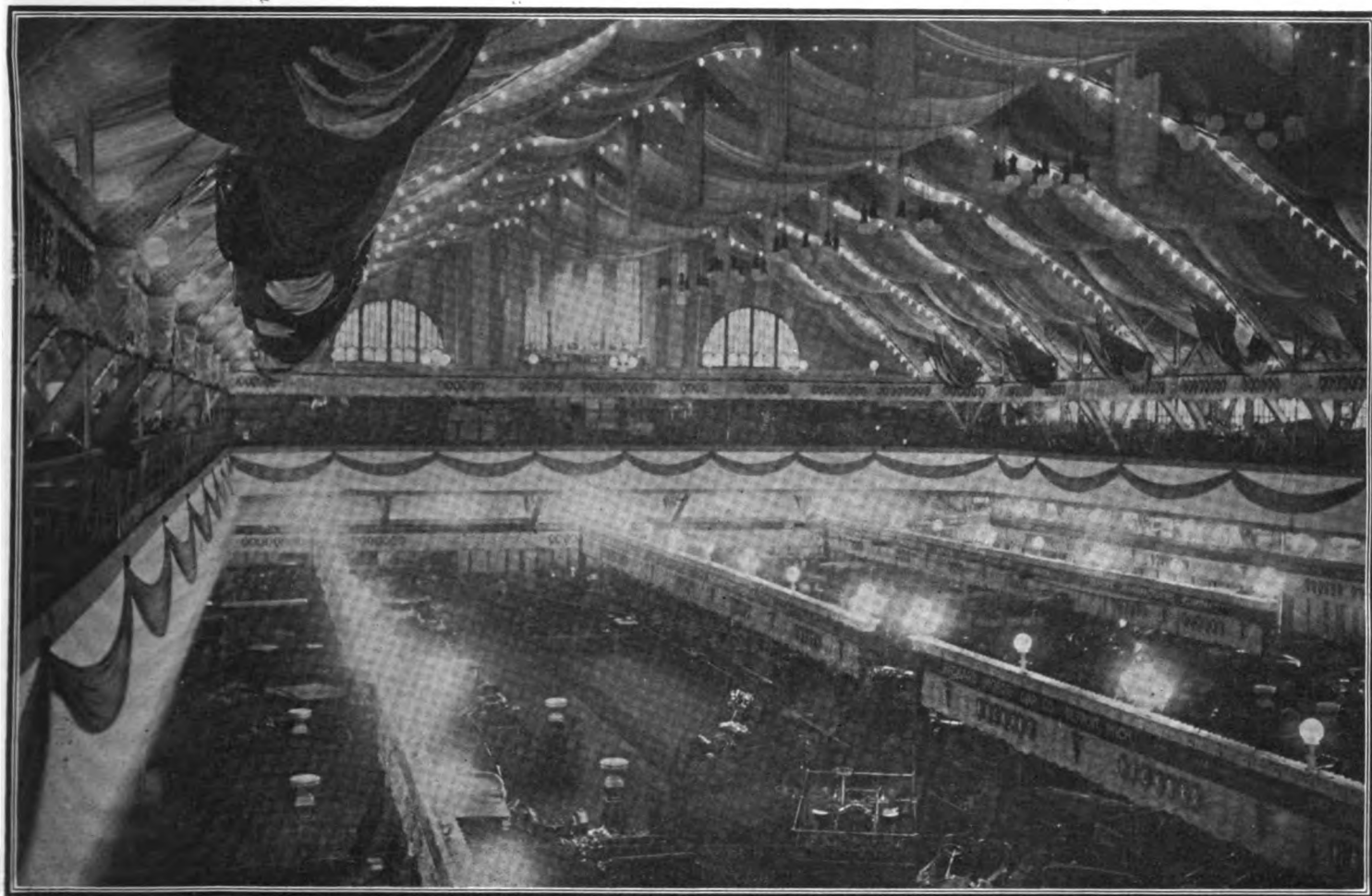
any other means, chiefly on account of the possibility of scavenging the cylinder under such circumstances. The mechanism necessarily involved in obtaining it is, however, of such a nature in every case, that the advantages gained prove a not unmixed blessing, and on that account, it seems doubtful whether such a method of construction ever can be brought to a successful issue in a high speed motor for common and practical useage.

One more little voice has piped out the fact that the automobile must henceforth be taken seriously, and now, all counties East of the Rocky Mountains having been heard from, the vote may be considered unanimous, and the association of unorganized scribes may consider itself at liberty to pass upon the question. What of it? The thing was self-evident from the first, but it really did require the consent of all before it could be accepted as a fact.

Evidently the obscure commentator who proposed that the tire makers offer their wares free of cost to the motorist so long as he agrees to have all his repair work done by the maker supplying him, had not been to the shows, nor investigated the far reaching nature of the improvements offered to the 1906 buyer.

Megaphone Quartet the Feature of Chicago's Show

Despite Fine Trappings and Unusual Splendor, the Promoters Again Call Vaudeville to their Assistance—Several New Cars of Note Put in an Appearance.



GENERAL VIEW OF THE SHOW IN THE COLISEUM.

Chicago, Feb. 3.—To the melodious warblings of a megaphone quartet with brass band accompaniment, the doors were thrown open this afternoon to that well thumbed book—the Automobile Show—in a new cover. And it is indeed a new cover, binding and fly-leaf all of a de luxe edition, for never before has the "Only National Show" come forth in such resplendent array to appeal to the public of the Windy City. And the appeal was not in vain, for long before evening arrived, every aisle of the Coliseum represented a surging mass of humanity that circled round and round—the long and apparently endless tube lead-

ing to the overflow exhibits in the First Regiment Armory, and back again, in a manner that precluded any examination of the cars themselves. But not yet does the car reign supreme as the center of attraction, for the "boy phenom" and "nigger lady" of other years have given way to the man behind the megaphone. As already stated there are four of him and by maintaining an automatic side to side action of the huge papier mache tubes, they attempt to give every part of the house the benefit of at least a portion of the touching selections rendered. Apparently no Chicago show is considered complete without this

silly, distracting and inexplicable feature.

Advance descriptions of the decorative effects, under the spell of which the designers of the Coliseum have been completely banished, conveyed but a scant idea of the actual result wrought by the army of workers who finished their tasks none too soon, though in time to leave the picture complete for the opening hour. The very aspect of settled preparedness takes the initiated visitor by storm, for Chicago's opening night has hitherto meant a vastly different scene. But with both the ornamental setting and the jewels all in place it seemed hard to realize that some of the latter had arrived

but an hour or two before. There is an occasional gap to be seen, such as the somewhat appropriate emptiness of space 13—the vacancy of which caused the average visitor to regard it askance at first until a glance at the ill-fated numeral brought forth a smile. To the knowing, there is an odd significance in the space number when taken in connection with the sign, for the latter bears the name of the Duryea Power Co., Reading, Pa.

Effectiveness of Decorations.

Upon entering, it is the setting rather than the occasion of it that first strikes and holds the eye. The details of the picture demand attention before the gaze comes to earth to investigate the cause of it all. Yellow and black are the dominating colors, varied with white, purple and the light green or patina of old bronze. No particular school of art has been relied upon to supply the motifs, something borrowed here and there, blending with original features and combining to make the whole the most effective background for the motor car that the West has ever seen. The main floor has been divided into three longitudinal plots or strips by colonnades with parallel aisles between, and this has been further divided into six rectangles by the intersection of the main aisle leading from the entrance.

Square columns of Flemish oak, embellished with staff ornamentation in bronze green, support a continuous capital, all in the same sombre but effective material, which is thrown into high relief by the gilded signs and bright yellow tasselled drapery. Depending by iron chains from this capital are the names of the cars, spelled out in white on a dark blue background, formed by an individual staff shield for each letter, all being suspended separately. Crowning the capital is a continuous crest of ornamental staff in a conventionalized floral and symbolical design, the flowers, winged wheels and the hammer and gear wheel of mechanical industry being in relief, touched with gilt, thus contrasting with the bronze green of the crest and harmonizing with the drapery. Between each sign and against the drapery, which is utilized to set off the signs and names, are suspended copies in staff of Mercury's magic speed wand. Space boundaries are marked by a low gilded rail, from which hangs a curtain in dark red, the floor being carpeted in deep green set off by a border stripe of the same shade as the curtains.

Setting of Wall Spaces.

Not a whit less effective, though lacking the same elaborate ornateness, is the scheme of decoration adopted for the wall spaces. These are divided by buttresses built about the springing ends of the arches, both these and the walls themselves being converted into panels of burlap set in frames of the same Flemish oak. The ends of the buttresses separating the wall spaces are set off with large plaster medallions bearing

replicas of the winged wheel and the allegorical chauffeur used on the poster.

A similar arrangement is carried out in the balcony, the latter being further outlined by a continuous broad strip of white bunting edged with yellow and hung with green festoons. The ceiling is one mass of white and yellow bunting, completely hiding the frame of the building, the plainness of the latter being further relieved by the use of American flags. Exactly the same scheme or ornamentation is carried into effect throughout, so that whether the visitor chances to find himself on the main floor, in the annex or in the armory, the same restful and pleasing uniformity of color and ornament is apparent.

Lighting Well Carried Out.

To complete the picture and show it at its full value, a most effective scheme of lighting is employed. Here, if anywhere, was an opportunity to undo the work of the decorator by misplaced effort, but the lighting has been made to blend harmoniously with the color and decorative arrangement, so that it forms a component part of the whole. Clusters of five inverted arc lights, adorn the ends of the colonnades, with groups of three at intervals and single lamps equally spaced between, in addition to which the permanent lighting of the building is employed, all the arches being outlined in incandescent lamps, while temporary ornamental chandeliers bearing the latter are numerous in the balcony and annex.

There are one or two features to detract from the effect of the picture as a whole, though they are in themselves trivial and cannot dim the lustre nor belittle the credit due its designers and the skill and dispatch with which the work has been executed. Probably the only one worth while calling attention to is the failure to carpet the aisles, thus revealing a floor in generally poor condition, dirty and splintering in many places, though the presence of a candy booth at the main entrance and a soda fountain in the armory also strike the eye as strangely incongruous in such a setting.

How the Cars are Staged.

In less time than it takes to begin to describe it, the eye has absorbed it, as a whole and in detail, and instinctively turns to the cause of it all—the cars. And here are familiar names and faces on every hand. Flanking the main entrance are the Haynes and Autocar exhibits, showing the same array of new models as at New York. On each side of these two come the Winton and Peerless—names that suggest automobile shows since their inception and within a minute's walk of them one comes across that same array that has formed the backbone of the show ever since such a thing existed. They were its creators and main support and now some of them bring forth a collection of models and types sufficient to constitute a show of themselves. Such

for instance is the product of the allied Pope interests, for, beginning with the spick and span Pope-Toledo touring car that heads the line, down through the Pope-Hartford, Pope-Tribune and Pope-Waverly cars until the end of a complete section is brought up by a heavy electric truck built for a flour mill and appropriately finished in creamy white, one has passed in review practically every representative model in either gasoline or electrically operated vehicles that the market can boast.

And just across the main dividing aisle is to be found another instance of the same thing in the very comprehensive exhibit of Columbia electric and gasoline cars made by the Electric Vehicle Co. Taken together, these two exhibits extend in a strip 16 feet wide, practically the entire width of the building. But the main aisle is full of interest, for opposite each other in the block are the Thomas and Packard cars, the former exhibit revelling in Thomas flyers of most striking finishes that compel the visitor's attention and hold him in their spell for some time, while the glittering Packard chassis, enclosed by a brass railing, the polish of which suffers by comparison, is an object of unending interest to all alike. Time was when the foreign makers excelled in this respect, but few exhibition chassis ever constructed can rival this product of the Packard factory for elegance of finish, or the clearness with which from its elevated position it makes plain the simplicity of Packard principles and the excellence of the material with which they are carried out.

Stearns's Striking Exhibit.

Further down the same line comes another quite complete assortment of electric and gasoline cars, made under the aegis of the Studebaker name, while at the end of this row stands a car that brings an involuntary exclamation of admiration to the lips of every woman who sees it. It is a huge Stearns touring car, every part of which is finished in creamy white, relieved with broad stripes of buff. Standing alone in its majestic beauty, it forms one of the most striking exhibits on the floor, and is but another telling commentary on the fact that having reached an unprecedented degree of efficiency and reliability in the mechanical end, there is now ample time to devote to the aesthetic. At the opposite end of the same line are the trim and business looking Stevens Duryea cars, and behind them and on one side as well as backing the Thomas flyers, comes the entire family of Ramblers. The interval between the shows has given time to catch up, so that now for the first time does the complete Rambler menage beam upon the visitor in stately array. The line is headed by a handsome limousine and the long array of cars is punctuated by the presence of a highly polished exhibition chassis of model 15, neither of which was on view at New York. As it is about the most comprehensive line of two and four cylinder gasoline



cars made in the West, if not in the country at large, it is an exhibit that attracts an unusual amount of attention, much favorable comment being elicited by the long and painstaking study devoted to the design and execution of the new four-cylinder cars which is revealed in the numerous detail features exclusive to them, as well as many others which evidence the fact that the makers have been keenly alive to the merits of devices worked out by other builders from hard experience. One of these that is universally appreciated is the fitting of a combined starting crank holder and spark retarder. The crank cannot be disengaged from its support without operating the spark retarding mechanism which is thus made automatic in action. It is a matter of minor detail to be sure, but one that cannot fail to impress upon the beholder the amount of foresight lavished upon the design and execution of the car and it is something that distinguishes the Rambler line throughout—one of the many other instances of it being the improved radiator suspension.

A mecca for those alive to the sporting element of the automobile is the Locomobile stand, with the car driven by Tracy in the Vanderbilt race. In comparison with it the other models of the Locomobile hold but secondary interest until curiosity has been sated, and there is a widespread desire to see the stock models of the car capable of making such a consistent performance

under the most trying conditions. The delicate tints in which the present year's Locomobiles are finished is also a matter of genuine admiration, as they form a pleasing contrast to the endless lines of sombre black and blue. The two rectangles opposite, the Rambler and Locomobile stands appear to take one into different territory—a commercial vehicle lane composed of Knox delivery wagons and Olds trucks and busses. Though both makers exhibit runabouts and touring cars, they are overshadowed at first glance by the higher bodies of the wagons.

And Knox "waterless" delivery wagons are evidently very much at home in the Windy City, for the commercial end of the exhibit is composed entirely of vehicles built for the service of Chicago firms. They are of widely varying purposes and illustrate the fact that their usefulness is unrestricted. Naturally, there is a double attraction on the Olds stand—interest is divided between a desire to note the features of the new Olds "Palace" touring car and the two-cylinder, two cycle car. Though still in evidence and as large as life, the curved dash runabout that has shown so conclusively what it is capable of, as well as its later brother—the piano box type, have perforce been relegated more to the background since the advent of the two new members of the Olds family that are so strikingly different from their predecessors, and which embody so many features of interest from

the standpoint of design. It is evident that the Olds commercial vehicles have not been neglected in the meantime, for they are here in full force. The two-cylinder vertical chassis, of which type one is shown as a full fledged hotel bus or station wagon, another striped and still a third for trucking purposes, are not to be neglected.

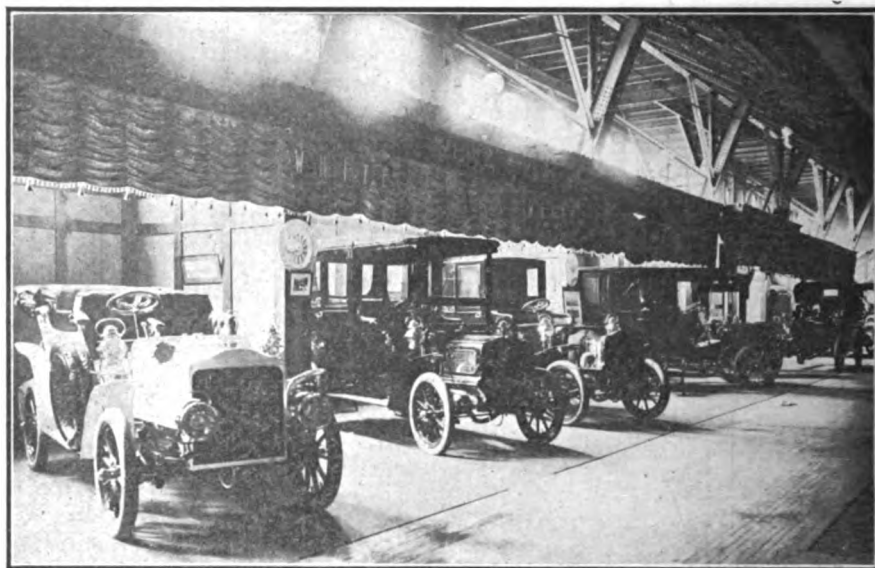
Right across the main aisle the old and new in "two cycledom" confront each other for facing the new Old two cycle are the Elmore cars—"the automobiles that made the two cycle principle famous" and without the constant and consistent adherence of whose designers this type which gives such exceeding promise of efficiency and simplicity might have been left to slumber undisturbed in unknown fields of minor importance. To say that the new three and four-cylinder Elmore touring cars are "centers of attraction" is but to overwork a phrase that becomes meaningless where there is so much to attract. Their exceeding simplicity and utter lack of small parts afford but little opportunity for study of the Elmore power plant. It is all there, to be sure, but that is so little of it that one good look is sufficient to absorb not alone its salient features, but all visible details—and of the few of the latter that are apparent the most striking is the provision made for instantly cutting off the gas and spark from any cylinder.

One of the "new from the ground up"

cars that every wise one takes out his note book on approaching is the "leverless Northern," which is a law unto itself in practically every respect. And the fact that what sounds so complex in a description should be so utterly simple in reality comes as a surprise to the majority. They are not prepared for the severe plainness and lack of encumbrances of its one-piece four-cylinder motor, or the absence of the complicated apparatus that would seem to be entailed in the addition of a compressed air plant to a car. It is proving as much of an eye-opener to the sharp ones of the western contingent as it did when first uncovered in New York.

Flanking the Northern exhibit is still another aggregation of electrics and gasoline driven cars, the product of the Woods Motor Vehicle Co., and across the main aisle the latter strung out in a line are the National, Maxwell and Mitchell. The highly polished chassis of the "holder of the world's 1,000 mile record" embodies features sufficient to keep the spellbinder continuously occupied in explaining their merits to interested onlookers and the latter never fail him. The National is a car that shows the result of long continued and painstaking attention to every part of the power plant and its accessories so that the interest excited in the mechanical criticisms is not to be wondered at. The Maxwell exhibited is one of the few that is divided between the Coliseum and the Armory, though the showing in either is sufficiently representative to stand alone. Next to the Coliseum branch of it stands a Mitchell truck and beyond is a line of the various members of the growing Mitchell family of cars, which probably more than any others on the floor appeals to the prospective owner who is a new entrant into the fold and whose means are limited. Four-cylinder cars such as now form the Mitchell line at \$1,000, \$1,500 and \$1,800, make the visitor who is anxious to join the ranks, but thinks it far beyond him, take a new interest in automobiling and confirms his opinion that in the near future the possession of such a car will be his as well as that of many others in his position. The Mitchell cars prove potent educational factors by demonstrating that not alone excellence of design and execution, but quality of material may be combined at a figure that is well within the reach of the man to whom even a \$2,500 car is an impossibility.

Lined up against the rear wall in their artistic setting of panels are the Pierce-Arrow, the White galaxy of steamers, and last but very far from least, the Ford six-cylinder chassis and the four-cylinder runabout. As the holder of the Glidden trophy which is on exhibition at a downtown jeweler's, the Pierce Great Arrow attracts the attention of the many whose antipathy to the automobile rests upon a mistaken belief in its lack of reliability. The running of 1,000 miles without so much as a single adjustment, is a performance that not alone causes considerable eye lifting, but a re-



formation of opinion as well. "So that's the car that did it," seemed to be the tenor of most of the surprised exclamations. To the adherents of steam the showing of White cars is one that tends to make him more confident than ever that steam is the only power. Here are White runabouts, White broughams, White touring cars—the makers have gone into it thoroughly and almost every model turned out, and one of the largest aggregations of cars of one make and class to be found anywhere on the floor. The number of models, and their quality, as well as the interest evinced in them, leaves little doubt in the mind of even the strongest advocate of gasoline that steamers—that is White steamers—will always hold their own with the best of them.

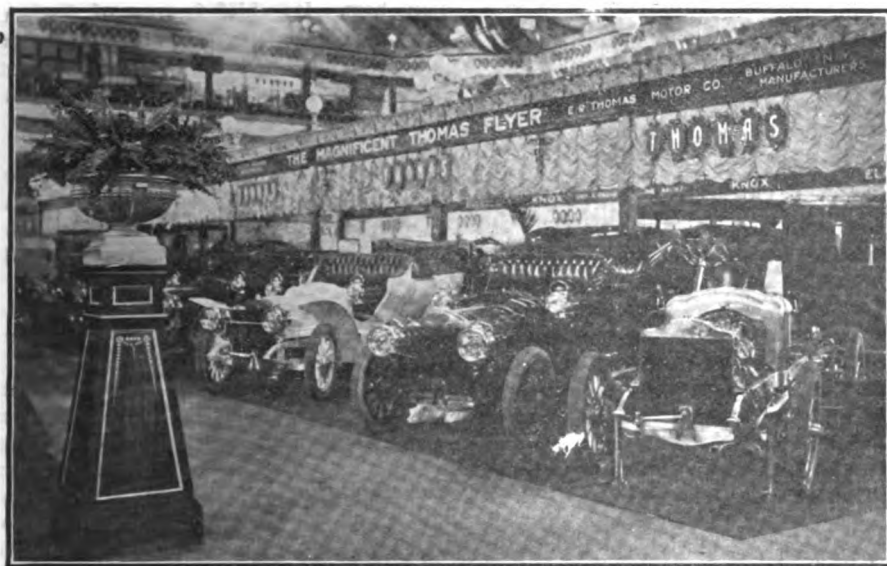
An equal if not greater amount of interest has been constantly centering about the striking exhibition chassis of the Ford six-cylinder model which looks to many of the Westerners more like the product of the jeweler's shop than of the automobile factory. Its severe simplicity despite its extra pair of cylinders, has been the cause of calling forth unstinted praise and no little marvelling at the fact that it should be found possible to turn out such a piece of mechanism to sell at \$2,500—a price that commanded very little and that extremely crude, but a year or two ago. A repetition of the ovation tendered to the Ford four-cylinder \$500 runabout in New York has greeted its appearance here, and acting upon the experience of its debut it has been mounted on a stand to which it is fastened to prevent the crowd constantly surging about it from carrying it off bodily.

"Poor man's corner" would be a most fitting title for this alcove, for right across the aisle, from the Ford \$500 runabout, that in every respect represents the very last word in modern design and construction, is the Holsman. No juggling of space numbers could have resulted in bringing so close together types that are so far apart. Even the original Ford of 1892

shown in New York would look modern and up-to-date beside the awkward looking Holsman, which is apparently least known in its home town, for the usual remark heard consists of "Well, what it is anyway?" And whether a satisfactory reply were forthcoming or not few evinced sufficient interest in finding out to tarry. A year ago when the rear entrance tonneau disappeared for good and all from the ken of the automobile body designer, the Holsman clung to it, if such it could be termed, for the door was three inches high. Now it has come nearer adopting an out and out rear entrance tonneau, if the term can be used in connection with an old line farmer's surrey, by making the door a foot or two high. This feature and the adoption of a flexible steel cable in place of the hemp rope formerly used as a drive, constitute the only changes in the runabout and surrey models—the same now, price included, as they were when first built and the same as they will be at the end of the chapter. There is certainly a demand for a "farmer's automobile," when such as these bring \$650 and \$800.

In the order named, against this same wall are ranged the Reliance, Premier and Glide—all of Western origin and representing in their design the tendencies of the out and out American builder who has wrought for himself, only adopting from other sources, features of proven merit. All these were at New York show this year, some of them for the first time. The Premier has cut a swath for itself in the air-cooled field and invaded the Eastern market so long ago that it is probably as well known there as nearer home. Nor is the Reliance an altogether new comer in Eastern fields though its makers have devoted their attention largely to marketing their product in the West.

Extending along the wall aisles leading in both directions from the main entrance are to be found the Wayne and Waltham-Orient on the right and the Baker electrics and Cobbin air-cooled cars on the left.



With their 50 h. p. model, the builders of the Wayne are entrants into the ranks of makers of high powered cars, and the big Wayne, which made its debut with the opening of the year, bears all the earmarks of experience in turning out a combination of strength, lightness and reliability that can doubtless hold its own against all comers. The Waltham-Orient is not a new line to Chicago by any means, but its presence among the Western cars recalls that it was the pioneer among air-cooled cars Down East when that principle was considered something peculiar to the region west of Albany. From the Orient buckboard up, the entire line of the Waltham products is well represented.

The Corbin is another Down East creation that is usurping the prerogative of the Western builder of air-cooled cars by invading Chicago for the first time this year. Its success in its own country is doubtless sufficiently well known all over the union to make its name here and will moreover form but a basis upon which to build its reputation more firmly. But a step away and the heavy and medium weight chassis are encountered again in the shape of the 50 h. p. Apperson and the Royal, both names to conjure with. These share the panelled spaces of the north wall with the Cadillac—a car, the fame of which is not greater in the East, where it is truly great, than it is in the West. There is little that can be said of any one of this trio that is not well known, or that would add to its reputation. It would be a difficult matter to find a town of importance where their names have not become a byword. To the uninitiated, eager to see the wheels go round and get a glimpse of the "works," the 30 h. p. Cadillac exhibition chassis with the interior of the motor lighted by electricity and turned over by an electric motor, is a magnet that holds an interested circle of spectators, not all of whom are seeking information of a rudimentary nature by any means. The low prices at which the three lighter models of the Cadillac are offered likewise prove an attrac-

tion too strong to resist and aid materially in filling the order book.

On the first floor of the Annex is to be found another single exhibit that constitutes a fair sized automobile show in itself—the cars of the Vehicle Equipment Co. Flanking this exhibit on either side are the Marion air-cooled cars with their novel suspension and the Welch, and it requires but the installation of the Viqueot exhibit in connection with the varied line of electric vehicles already displayed by the Vehicle Equipment Company, to complete the exhibits on the main floor, with the possible exception of an occasional car or chassis here and there that has been held up in transit. Others housed in the Annex are the Buick, that has come to the front in such an impressive manner during the past season, the Austin and Jackson, which invaded the East for the first time this year, the Pungs-Finch, a well-known product of the country's automobile center, Detroit, the Pierce, Racine and the Tincher.

Tincher Uses no Side Levers.

The Tincher line now includes models of 30, 40 and 70 horsepower, listing at \$4,000, \$6,000 and \$7,500 respectively, the last named being the heaviest stock touring car placed on this market. Cellular radiators have been adopted on these cars in place of the five tube type formerly employed, while another innovation is the fitting of a single distributor for the double system of magneto and accumulator ignition. A feature, exclusive to the Tincher is the adaptation of a selective change speed gear without the use of the familiar side moving lever that is its invariable accompaniment. This is obtained by the use of what is termed a vertical quadrant—something on which the makers are not disposed to unburden themselves fully until it is covered by patents. The changing lever and its slide are duplicates of the type in use on the straight sliding system and in normal position give the neutral and two speeds simply by moving forward and backward or centering the

lever. Two additional speeds are obtained by pulling up the handle of the lever which is of the telescopic type, and then forward or back, according to the result desired.

Ingenuity in a Steamer.

Although manufacturing for three years past, the Chicago Automobile Manufacturing Co. is exhibiting its product, the Chicago steam touring car, for the first time at any show. While employing steam as a motive power, the car follows gasoline propelled lines throughout and possesses many features of merit and interest. Under a bonnet that to all appearances might shelter a gasoline motor equally well is carried a steel tube semi-flash generator, while under the foot board and level with the rear axle is a 25 h. p. four-cylinder, single acting steam engine. The cylinders are inclined toward each other. The engine develops its rated horsepower at 600 r. p. m. and there is a cut-off range of from $\frac{1}{2}$ to $\frac{3}{4}$ of the stroke which in experienced hands should prove very economical of steam. The generator is of the down-draft type and tank capacity sufficient for 19 gallons of gasoline is provided. A gear change is provided giving a ratio of 1 to 6 for hill climbing, the direct drive being 1 to 3. All four pumps are run from an ingeniously arranged single eccentric on the gear box, which makes the engine particularly simple. Novel torsion rods are employed, the final drive being to a floating rear axle with jaw clutches in the driving wheel hubs, the latter also being equipped with ratchet straps. The resemblance to the gasoline car is further accentuated by the use of side levers for controlling the cut off and reverse as well as the gear changes and by the use of the same type of hand levers on the steering wheel for the throttle and auxiliary water control. A rotary throttle of ingenious design that dispenses with packing is employed, its operation being through ports on the same principle as the cut off of the usual high speed steam engine. The suspension is unique in that the springs are in the shape of an archer's bow and unusually long. With 34x4 inch wheels the weight is 2100 pounds, the car completed listing at \$2,500 and \$3,500 with limousine body. By the addition of an outlet and check at the pressure gauge on the dash the engine air supply is employed for pumping the tires.

ARMORY.

Upon emerging from the long wooden bore into the Armory, the presence of foreign machines is at once evident and impresses the fact upon one that they are conspicuous by their almost total absence in the Coliseum, the Mercedes, which is housed in the Annex being the only exception. And even in the Armory they form but a fraction of the total showing, such familiar titles as the Queen, Maxwell, Reo, Rainier and Berkshire, the Cleveland, Lozier, Stoddard-Dayton, Frayer-Miller and others combining to form a preponderance of American design. Here also is the Ameri-

can Berliet—the product of the American Locomotive Automobile Co., the polished chassis coming in for no small amount of favorable attention at the hands of those well versed in the highest degree of the art. To say that such exhibitors as the Frayer-Miller, Queen, Cleveland, Lozier, Berkshire, Ranier and Reo shipped their exhibits in toto from the New York Show is merely to reiterate the fact that they are well represented amid surroundings that do them credit, and to judge from the size of the crowd the “overflow” show does not suffer in the least on that account, many coming at the main entrance of the Armory first and going through to the Coliseum afterward. Interest in the “Baby Reo” has quadrupled through the provision of compressed air to show it in operation, while the reputation for endurance and reliability gained by the Frayer-Miller during the past season makes the new six-cylinder model a magnet that fails to act upon few indeed.

A feature of interest at the Lozier stand in addition to the cars and a number of parts in selection showing the method of construction and quality of material employed, consists of a huge four-cylinder marine motor and transmission. Ranged along the north side with the exhibits of the American Berliet and the Cleveland is the Hotchkiss stand, displaying a highly polished chassis for which the French makers are justly famous and which but a few years ago would have been the envy of American builders. To judge from the extent of the Maxwell exhibit in the Armory it would appear that this was their sole representation, for there is a limousine, a delivery wagon finished in bright yellow, a touring car and a tourabout, in addition to the cars in the Coliseum.

Many Cars from Kansas City.

One of the most comprehensive lines of gasoline cars that were not shown at New York is that of the Kansas City Motor Car Co., a concern which in spite of six years' experience in building cars of various types under another name, comes to its first public exhibition this year. Among its products are to be found anything from a gasoline runabout up to a ten ton truck driven by the same power. The runabout chassis built by this firm consists of a two-cylinder horizontal opposed type rated at 25 horsepower, the dimensions being 5x5½. The wheel base of this chassis is 96 inches and its weight about 1,500 pounds. On it is mounted a runabout body, at \$1,450, touring or four-passenger type at \$1,650 and an 18-passenger hotel 'bus at \$3,000, 4½ solid tires being employed on the last named. Then there is a slightly heavier and more powerful chassis with the same type of engine, the cylinder dimensions being 5x5½, and the weight 2,300 pounds on a 97 inch wheelbase. With 32x4 and 42 rear tires this sells at \$2,250. All the cars of the above type are built as closely as possible

to the same standard throughout; all employing a two-speed planetary gear.

The head of the touring car line is a 50 horsepower, four-cylinder vertical type, the dimensions of which are 5x5 on a wheel-base of 110-inches. This is provided with a four-speed sliding gear and sells at \$3,000, being in most other respects similar to the lighter cars. The lowest powered car of the entire line is a 15 horsepower delivery wagon with a capacity of 1,000 pounds, the engine being of the horizontal opposed type as are all of the motors on the Kansas City commercial vehicles. This light delivery wagon has a wheel-base of 86 inches and with 28x3-inch solid tires, sells for \$1,250. Next in order comes a 25 horsepower delivery wagon of medium capacity, built upon the standard 25 horsepower chassis already referred to. It sells at \$1,650. A still larger size of the same type is rated at 35 horsepower with a carrying capacity of 2,500 pounds and upon the same chassis is built a two-ton truck, the increased capacity being gained by an alteration of the gear ratio, substituting carrying power for speed. This lists at \$3,500.

Truck With New Clutch.

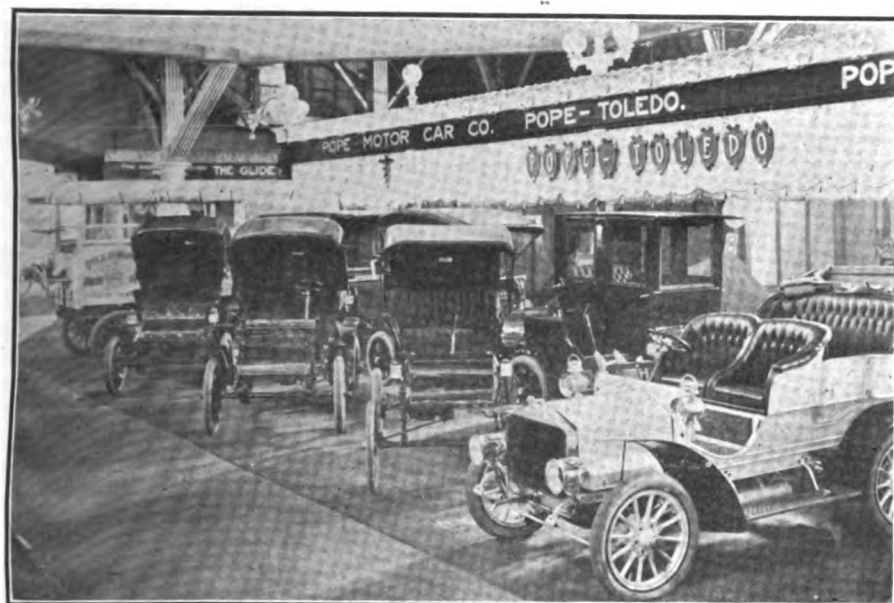
Next in size is the four-ton wagon, employing a 60 horsepower four-cylinder horizontal opposed motor—probably the only one of its kind using this type of engine. The cylinder dimensions are 5x5½ inches. The tread is 78 inches and the wheelbase 124 inches, the frame being of the heavily armored wood type. An exclusive feature of these heavy trucks is the form of clutch employed, this being of the usual V-section metal pulley with champing hardwood blocks, a type usually found on direct connected gasoline-driven, electric lighting sets. A gear interlocking device is provided, effectually preventing the clutch from being engaged until the pinions are fully in mesh, a two-speed sliding gear being used on all the heaviest trucks. With the exception of the differences in the body and running gear, as well as the gear ratios of the transmission, this four-ton truck selling at \$4,500, is substantially the same as the 6, 8 and 10-ton trucks listing at \$5,000, \$7,000 and \$7,500 respectively. Some idea of the massive construction of the vehicles may be gained from the fact that a 3¼-inch solid steel axle is employed on the six-ton size and a 4¼-inch axle on the 8 and 10-ton with 5½, 7 and 8¼-inch solid rubber tires, the drive being by double side chains in every instance. While the same engine is used on all these sizes the difference in the gear ratio gives average speeds of 20 miles in the case of the 4-ton, 18 for the 6-ton and 14 miles an hour for the 8 and 10-ton. The same radiators and bonnets are used on all sizes from the runabout up.

Valveless Four-Cycle Engine.

One of the genuine surprises afforded by the entire show is to be found in the Armory in the shape of the “Silent Knight” car, built by Knight & Kilbourn, a Chi-

cago firm. Its chief feature of distinction is a valveless four-cycle motor and the manner in which this has been worked out is decided novel and interesting. The pistons work up and down in sleeves instead of directly against the cylinder. There are two of these sleeves, the upper one being about half the length of the lower. A single two to one shaft is run by gearing from the main shaft and from this secondary shaft two connecting rods control the movement of the sleeves which traverse a range of one inch while the piston is traveling its normal stroke at five inches. Two ports are cut in the upper or shorter sleeve, one for the intake on the left hand side and one for the auxiliary exhaust on the right, the main exhaust being through a large port in the long sleeve which uncovers it at the extreme end of the piston's stroke. These sleeves and their ports in admitting and exhausting the changes work on the same principle as the usual high speed steam engine. Their area averages about six times that generally calculated in poppet valve design. Owing to its freedom from exterior moving parts and the rapidity of the exhaust the motor is very silent in operation and is well christened. Although somewhat difficult to comprehend from a description, the principle of the motor will be clear if it be borne in mind that the sleeves are concentric with each other and that they travel in opposite directions at the same time as the piston is making its stroke. Rather a novel provision for pumping the tires takes the form of a small pump mounted on the frame and adapted to be run by the motor merely by snapping the end of the pump piston over a small specially designed crank pin that is normally recessed in the surface of the secondary shaft pinion. This pin and the pump piston are so designed as to be readily attached, but cannot become disengaged without releasing the former. Apart from the motor and its immediate accessories, the remainder of the car is assembled principally from Garford parts. A car has been in service for a number of months during which time it has been run several thousand miles with satisfaction. The “Silent Knight” is in reality just making its debut as it has not been on the market up to the present. The suspension may also be expected from the foregoing general statement as it is of a design claimed by the makers to render unnecessary the use of any shock absorbing devices. The springs are of the usual semi-elliptic pattern, but upon the upper side of them are bolted two short leaves under a tension opposed to that of the remainder of the spring. They are bolted in sloped ways to permit of their movement, thus tending to overcome any plunging or sudden flexion of the main springs.

Other exhibitors in the Armory that were not at the New York Show are the McCrea Truck Co., selling agents for the Champion electric delivery wagons and trucks and the Western Tool Works, builders of the Gale



cars, of which there are on view a light touring car with their novel tilting body permitting of an instant inspection of every part of the chassis, and a covered runabout. In the same category is the American Motor Truck Co., builders of gasoline commercial vehicles. They are at present confining attention to a 3 to 4 ton capacity truck fitted with a 4-cycle vertical, 35 horsepower engine placed tandem under the driver's seat. The engine dimensions are 5x6 and it is designed particularly for truck use, low compression and low speed, making for durability and safety from breakdown under continuous hard usage. A valuable feature of the motor consists in splitting the crank case at a 45° angle, all bearings and shafts being enclosed and supported on the permanent side, the other half representing a cover, the removal of which permits of the abstraction of any part, including the pistons, without the necessity of disturbing any adjustments. Transmission is through a 2-speed planetary gear with side chains as the final drive. The front axle is a drop forging of 2¼x4 inch section and the rear is a 2-inch square of solid steel. Four and 5-inch Firestone solid tires are employed on 36-inch artillery wheels. The wheel base is 118 inches and the tread 54½. As a stake truck this vehicle lists complete at \$4,000.

Five Cylinders; Four Speeds.

This year the Adams-Farwell line includes a full-fledged 45 horsepower touring car, and despite the many radical innovations embodied in its predecessors, the ingenuity of its designer has found further scope for his ability. It is motored with a 5-cylinder engine of the air-cooled, fly-wheelless, revolving type made familiar by this house, and while an experimental engine of this size was in use all last year, it now makes its first public appearance. The dimensions of the cylinders are the same in both, 5x5 inches, and so far as the

new motor is concerned it is practically an enlarged replica of the 3-cylinder type. The four-speed planetary transmission employed on the 1905 convertible cars is retained in the same types this year, but for the touring car a double clutch sliding change speed gear giving four speeds and reverse has been adopted. It is composed of two independent elements, the motor itself being mounted over the center of the gear box and driving the countershaft of the latter through bevel pinions. The driving shaft is supported on three Hess-Bright ball bearings and is squared near each end to receive the sliding elements, the left hand clutch giving the first and third and the right, the second and fourth speeds. The various elements are so arranged that a shift to a lower gear may be made before releasing the higher, an effective interlocking mechanism on the clutch rocker shaft preventing the meshing of a gear that is engaged by a clutch, and preventing the engagement of a clutch before the pinions are fully in mesh. Altogether it is a piece of mechanism that is difficult to explain in a few words, particularly without illustration, but is on the whole very simple and very cleverly worked out. The line now comprises a convertible 25 horsepower car at \$2,000; a 45 horsepower touring car at \$3,000; a brougham on the 3-cylinder chassis and an extension brougham on the 45 horsepower chassis at \$4,000.

But there are also numerous familiar names in the Armory besides, some of old standing such as the Logan Construction Co., with an extensive line of pleasure and commercial vehicles—a description that applies with equal force to the Marion Motor Co., the Rapid Motor Vehicle Co, with commercial cars alone, the Acme Motor Car Co., touring cars, the Moline Automobile Co., makers of the Moline car; newcomers such as the Moon and new entrants into the field of four-cylinder touring cars, such as the Dolson, built by the Dolson Automobile Co. The exhibit of the Synnest-

vedt Machine Co. could not possibly escape the attention, for the platform of the 5-ton electric truck staged, resembles an elevated dancing floor more than anything else. It is equipped with a sufficient battery capacity to give an effective radius of 30 miles. A Renold silent chain drive to both rear wheels is employed.

The Soules Motor Car Co. stages a line of light gasoline driven delivery wagons. They are equipped with a 24 h. p. two-cylinder horizontal motor, the dimensions of which are 5½x5. Transmission is by means of a leather faced cone, two-speed sliding gear and propeller shaft. With body, these delivery wagons tip the scales at 2,400 pounds and have an average speed of 20 miles an hour. They are fitted with 32 or 34 inch wheels, with 3-inch solid tires, and list at \$1,800, complete, any type of body being supplied.

Harrison's Novel Departures.

Next to the Grout stand on the second floor of the Annex, was uncovered a surprise that did not arrive in good season for the opening. It is called the Harrison and hails from Grand Rapids. This is its first bow, and the object of its builders—the Harrison Wagon Works, is to restrict their output to comparatively few cars, but to turn out as good an automobile as can be built. It embodies numerous novel features throughout that render it well worth studying. With a bore of 4¾ inches and a stroke of 5 inches, the motor is rated at 40 horsepower. The exhaust valves are placed in the center of the head and are operated by rocker arms, with yokes encircling each exhaust pipe. The exhaust cam shaft is so constructed as to give a variable lift to the valves, which is controlled by a small pedal on the footboard. This permits of varying the size of the exhaust opening by about 25 per cent. The inlet valves are of the atmospheric type. A safety valve is provided on the muffler, as well as means for opening or closing the latter at will. From the forward end of the secondary shaft a bevel driven shaft is carried upward to the opposite side of the motor, where it extends rearward to the dash, and is utilized to carry the distributor. The transmission is in a class of its own in that it provides as many reverse as forward speeds—four in each direction. The gears are always in mesh, the various changes being effected through the medium of individual jaw clutches, controlled by a lever in a selective quadrant. One of its most unique features, however, is the provision made for self-starting, which consists of a device for injecting dry gas from a Prest-O-Lite storage tank into the cylinder that is about to fire, when the spark completes the operation. With a 7-seated body of the touring type and cape top, the Harrison lists at \$5,000.

At short intervals, the sameness of the long rows of cars, conforming more or less closely to one standard, is punctuated

with one of the air cooled type. This is the case with that new Detroit production—and a “quick comer,” the Aerocar—which is located on the second floor of the Annex. Its appearance invariably brings about a halt for an investigation of the exhibition chassis shown, which, unlike all others, is finished in black and the more striking because of the fact.

ACCESSORIES.

Of all the hundred and one things that the motor car must have, and without which it would be incomplete; the things that are usually classed under the comprehensive term of accessories, tires stand pre-eminent, from the viewpoint of both value and importance, and it goes without saying that tire interests are better represented at the show than any other single item in the accessory line. Detachability is the watchword and there is seldom an interested audience lacking in front of such booths as those of the Hartford and Goodrich tires for the demonstrators to practice on. Keen appreciation of the advances made is apparent, but there is a desire to compare all the devices of this kind shown which results in a round until the merits of the Fisk and Goodyear, the G. & J., the new Firestone and the Dunlop, the Goodrich and all others of any pretensions in this line have been examined and compared. The new “Double Diamond,” inner tube and the Burnham tire protector, also an addition to the same family, are sources of interest, and particularly the former for obvious reasons.

The new Pennsylvania racing type, with its broad flat tread covered with corrugations, has a business-like appearance, and interest in it is heightened by the fact that it is designed especially for racing, though its qualities as a preventive of slipping and sliding under touring conditions are also features of note. Questions of the economy are of vital import to the owner of a car, so that the booklet of the Fisk Rubber Co., issued under this title and explaining the merits of their cushion construction and mechanical fastening, meets with ready acceptance. “Past performances rather than future promises,” is the watchword of the Firestone solid tires, while the Swinehart corrugated tread solid clinchers likewise rely upon a long record of things achieved, some of which are incorporated in a neat pamphlet. The Dewes is another solid tire of endless double locked fastening, made in New York City, and the rapidly increasing adoption of the commercial vehicle in all sizes and for every imaginable purpose is bringing the solid tire into such increasingly greater use on the motor vehicle that it will rival its competitor, the pneumatic, in numbers, in the near future. With one or two exceptions, every prominent domestic maker of both pneumatic and solid tires from Morgan and Wright, who are probably most at home at the Chicago show, to the Fisk Rubber interests from farthest East, is represented in

the circle of the exhibits that fringes the balcony of the main floor. The exceptions are the International A. & V. Co., whose exhibit is located in the Coliseum Annex, and the Panther tires of the Electric Rubber Manufacturing Co., which are displayed in the balcony of the Annex, where those premiers of the foreign racing and touring world—the Michelins, are also to be found. Here, also, are the Gaulois of French origin, and the patent Fawkes non-puncturable, that hails from Milwaukee.

Next in both number and importance, come the lamps, and it would seem that there is scarcely a spot on the balcony from which a lamp exhibit is not in sight. The

Chicago Cops Make Things Interesting.

Chicago, Ill., Feb. 6.—The Chicago police are doing their best to make things interesting for the out-of-town exhibitors at the shows. It seems that two days ago a demonstrating car narrowly escaped hitting one of the city's “finest,” and to even things up his fellows immediately went on the war path. The net result is that the demonstrators of the Lozier, Pope-Toledo, White and Haynes cars have been “pinched” and fined from \$50 to \$75 each for alleged violation of the speed law. The three first-named cars carried New York home numbers, and their drivers were placed under bonds to procure local licenses. Fourteen warrants are out for other demonstrators, but as yet the “cops” have not succeeded in serving them.

The passageway connecting the Coliseum and the Armory already has been “christened.” It is now known as “Pneumonia Alley.”

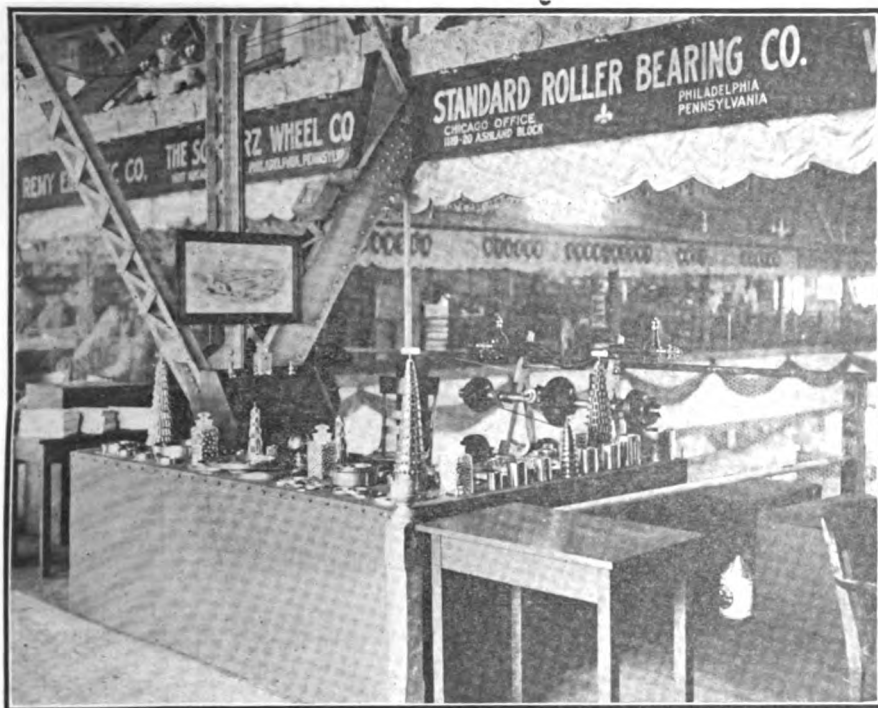
reflection of the polished brass of dozens of mirror-like lamps that adorn such familiar stands as that of Gray & Davis, the Badger Brass Manufacturing Co., and the Rose Manufacturing Co., can be seen from almost any part of the floor. To the uninitiated they are lamps and nothing more, but to the many manufacturers who take advantage of this opportunity to see all that the market affords in this field, there are many novel points of construction as well as finish and quality. Also the various patented systems of generating the gas gives the salesmen plenty to do in the demonstrating line, though in connection with acetylene gas on the car, the name Prest-O-Lite has become a by-word and familiarity with the brightly polished copper tanks and their purpose in daily use on so many cars, makes of them an item that calls for little or no explanation. Whether the visitor knows the inner workings of the Prestolite tank or not, he knows what it is and what it is for, and he sees it so often on the streets that its appearance here calls forth instant recognition.

The buzzing and whirring attendant upon the operation of the multitudinous kinds and

sorts of speed indicators proves as potent a call as the howl of the barker at the seaside, and the working of the little instruments is always a source of curiosity. Just what makes the red liquid mount the arched, graduated scale of the Veeder tachodometer, is a mystery to the majority and it gets a correspondingly great amount of attention. In fact, just what kind of works may be hidden by the compact cases of such instruments as the Jones speedometers and the Warner autometer is about as much of a puzzle as why is a gasmeter? Both employ hidden means to accomplish their ends, but in view of the unsavory reputation of the latter, where accuracy is concerned, it would probably be better not to carry the comparison any further where instruments that are accurate to the fraction of a mile are involved. An energetic invader of Western territory in this field is the Hicks speed indicator and odometer, made in Brooklyn.

Flashing spark plugs to the right of them, spark plugs to the left, spark plugs, coils, batteries and magnetos wherever one looks and all spitting fire as if they meant business. The magneto is in evidence here and there, working smoothly and silently, but making the sparks fly without apparent consumption of energy. The new machine designed by Splitdorf, the La Coste and the Apple, all came in for their share of attention. In addition to the alternating generators now forming an important part of his line, the Splitdorf booth is adorned with the usual endless array of coils of all sizes and capacities, and which are so largely employed as to make the name almost synonymous with high tension ignition. Then there are dry cells and accumulators galore, the Ever Ready specialties which in addition to batteries now comprise the Ever Ready trip detector and the Ever Ready self-starting device, both of which made their preliminary bow at New York. The large line of National dry cells, the Hensel, Vesta and Universal accumulators, all of which are now shown in special sizes for ignition purposes in addition to the regular commercial types. Plugs of every imaginable shape and size adorn the booth of the R. E. Hardy Co., and despite their number every one of the “Starite” plugs is made for a special purpose—in fact, a glance over the list of Starite sizes and the cars on which they are used is a liberal education in the matter of the varying standards adopted by American makers in this respect.

Hill precision oilers make their presence apparent on such a great number of cars on the floor that it is like re-meeting an old friend to see them arrayed in working order in the balcony after having made a round of the car exhibits. In addition to their line of rotary drive force feed oilers having from one outlet to ten, McCord & Co. also make a specialty of twisted wire for belts and copper and asbestos gaskets of all shapes and sizes for cylinders, mufflers, spark-plugs and the like. Incidentally, the McCord peo-



ple challenge the statement that any other system of lubricants is in more annual use than theirs, and submit a list of cars that bears them out. The Madison Kipp line of mechanical lubricators are also well represented.

Few such complete electrical installations for the car are shown as the Apple ignition system, comprising as it does, everything except the coils and plugs. A convenience that is appreciated in this connection is a voltmeter, placed on the face of the automatic cutout inserted in the circuit between the charging dynamos and the accumulators. Kangaroo spark plugs are a novelty of their kind made by the Tritt Electric Co. and which provides flexibility for the expansion and contraction brought about. It is fitted with a strong helical steel spring, surrounding the core and holding all its parts together, a lava core and mica tube affording double insulation. Heinze coils, made by the Lowell, Mass., builders, who have had many years experience in the designing and winding of coils for X-ray use and wireless telegraphy, are in a class that merit the attention of the technically minded owner who is not content with simply a coil, but must have one of the highest efficiency which, of course, means battery economy. The same applies to the builder of cars, for poor accessories will ruin his reputation sooner than anything else.

Here's a Rotary Carburetter.

Whether the carburetter outranks the ignition system is a question that will never be settled, for it would be hard to do without either, but one is as numerous as the other. Rather a novelty of this kind is termed Young's Rotary Carburetter and Mixer, and is made by the Culver Novelty Co. The mixer is in fact an auxiliary de-

vice adopted to be attached to any make of carburetter. The Young carburetter is of the throttling type, so arranged that shutting off the air simultaneously shuts the needle valve, both opening and closing in the same proportion. No float feed is employed. The mixer consists of a cylindrical casing containing two multiple blades, freely revolving wheels on a centered shaft. These are similar to ventilators, and are revolved by the suction of the engine. They attain a speed of 1,500 to 2,000 r. p. m., running in opposite directions, thus thoroughly mixing the air and gas.

Kingston carburetters and ignition specialties, made by Byrne, Kingston & Co., hold forth in the balcony of the Coliseum, and are shown dismounted as well as in every possible size that could be required by any car on the market. But speaking of size, a sight to catch the eye, is the line of carburetters made by the Speed Changing Pulley Co., which range from a pigmy of a fraction of an inch up to a jumbo of three inches outlet. The latter is a stock size, although originally made to the order of the British Westinghouse Co., and still supplied to them. On the same stand, are also shown one of the four-cylinder air cooled motors now being specialized by this firm.

Nothing brings to mind so forcibly the fact of the generally awakened appreciation of the role played by quality of materials as the presence of some of the largest specialists in the country, such as the exhibit of special high grade drop forgings made by the Bethlehem Steel Co. Midvale automobile steel and the boat steel, which it has been found necessary to produce in order to cut it, both of which are turned out by the Midvale Steel Co. are exhibited. The fact that the Bethlehem steel

drop forgings test from 85,000 pounds per square inch tensile strength for annealed open hearth steel, up to 250,000 pounds per square inch in the case of annealed chrome nickel steel, and that gears cut from Midvale automobile steels test from 65,000 to 200,000 pounds per square inch elastic limit, is sufficiently illustrative of the advances made. Then, there are further specialists in prepared material, such as the bewildering array of cold drawn seamless steel tubes for every imaginable purpose, shown by the Shelby Steel Tube Co., and the manganese bronze castings for various uses displayed by the William Cramp & Sons Ship and Engine Building Co., as well as their Parson's white brass for bearings.

Going a step further in the preparation of the material and the stage of the parts specialist is reached, such for instance "Kinwood" line of pressed steel frames, mufflers, radiators, gasoline gauges and mechanical oilers, made by the Kinsey Manufacturing Co., the apparently infinite range of driving chains, such as are specialized by the Whitney Manufacturing Co., in their roller, block and "wizard" chains, as well as the Whitney repair outfit for detachable roller chains—a tool the value of which is not fully appreciated until most needed; anti-friction bearings, of which the Hyatt and Timken rollers and the annular ball bearings, made by the Standard Roller Bearing Co., are familiar instances.

Call Them "Life Preservers."

"Life preservers" is the wording of a sign that attracts many to a booth in the Annex, to find that this life saver consists of a puncture proof, anti-skidding device. It is built up of fabric reinforced rubber tread of corrugated surface, made with a number of steel ears, around each side. A flexible steel cable lies in the latter, and is tightened with a turnbuckle, effectually holding the protective tread in place. A somewhat different form of life preserver that is not the less valuable, is a line of non-explosive gasoline tanks and cans. They are the product of the International Non-Explosive Tank Company, their chief distinction consisting in a safety tank and duplex safety valve that may be made part of any ordinary tank or can. Numerous tests have been made with half empty tanks, containing 30 or 40 gallons of gasoline by lighting a large bonfire under them, with no more dangerous result than the ignition of the large amount of gas liberated, but no explosion has ever followed as would inevitably be the case without such provision. The safety valve merely continues to rise and fall until all the gas is consumed. Precautions in fuel handling probably find their most modern illustration in the elaborate outfits displayed by S. F. Bowser & Co. and the Tokheim Manufacturing Company, by means of which it is rendered unnecessary to have any gasoline in the garage, or to handle it at all in the ordinary sense, as it may be pumped directly into the tank of the car.

Heading the list of shock absorbing de-

vices, comes the time tried Truffault-Hartford. A novel and rather formidable looking apparatus, shown in the armory is the "Hotchkiss anti-jolt device or shock eliminator," which is neither as complicated as it would appear at first sight, nor so imposing as its title, for it is in fact a very simple and effective mechanism, employing an ingeniously devised chamber, containing glycerine and an automatically acting valve to effectually check the upward recoil and still allow a sufficiently rapid recovery to keep it in readiness for the next bump. The opening is regulated by a needle valve, permitting of its adjustment to conform to the needs of the springs. Then there is the Baldwin spring recoil check, consisting of a cylinder or case containing a leather faced piston, the rod of which is attached to the axle, while an eye bolt on the case is made fast to the floor of the car, and the Edo spring compensator—a device of foreign origin, which has been adopted by several of the leading French makers. This is shown together with the La Carte maquebos and ignition specialties by the Franco-American Auto Supply Co.

Celluloid is rapidly displacing glass for wind shields, a full line of these being shown by a Down East concern—the Teel Manufacturing Company—together with the Teel tire case, which is made on the "detachable" plan, and permits of a tire being slipped in or out without lacing, and the Teel polished brass monograms. In connection with their display of E. & J. lamps and headlights of all kinds, the Edmunds & Jones Manufacturing Co., show the Togo gasoline motor. It is of the two-cycle type, and is probably the smallest of its kind, as the single cylinder model is scarcely more than a foot high. It is rated at $1\frac{1}{2}$ h. p., two cylinders, 3 h. p., and 4 cylinders, 8 h. p. Even the four-cylinder size could be carried off by a not over strong man.

No end of tops are to be found—a line in which the names of Sprague and London are most large, and it is noticeable that the runabout has not been neglected where covering is concerned, one type amply provided with celluloid lights being specialized by the Detroit Motor Car Supply Co. The Artz patent folding tonneau still occupies a field all its own, and proves a constant source of surprise to those who see it in operation, for the first time. An indestructible steel wheel, made by Turner & Fish, a Chicago firm, is a novelty that interests manufacturers. It is made of two steel stampings, the die leaving raised steel spokes of the usual number between the webs, so that but for its solid appearance it would not differ at first sight from the standard article. Before riveting the two faces, that constitute the finished wheel, they are copper plated and coated with enamel and baked. The weight complete is from $11\frac{1}{2}$ to 19 pounds per, according to size, and their carrying capacity ranges from 15,000 to 50,000 pounds, a special size being designed for heavy trucks. The rims are shrunk on in much the same manner as



with wood wheels, and the hubs are also bolted in the same manner.

"Your troubles and their remedy," is the title of a pamphlet issued by the makers of the Hancock valveless oiler, which was not seen at New York. For it are claimed the advantages of independent leads under high pressure, suction from the sight feed glasses so that the latter cannot fill and ability to run without the glass at all, as well as numerous others, prominent among which is an utter lack of nuts, screws or other small parts. In connection with lubricants, may be mentioned the exhibits of oil such as the Harris and the Vacuum Mobiloils—things that are passed by without more than a glance by the uninitiated, but the importance of which are duly appreciated by the experienced owner as well as the builder.

Chicago has not yet come to the stage of prohibiting horn blowing and the many different alarms shown on the various accessory stands, which, however, is nothing like as continuous or annoying as in former years, and some of the offenders, such as the Hutchinson Electric Horn, may be pardoned in satisfying the all-absorbing curiosity to find out how it works. As usual, the Gabriel stand is a prominent center of attraction in horndom, and resembles the organ loft of a church more than an exhibit of automobile horns. As at New York, the new Foster shock absorber is shown in connection with this exhibit and attracts a great deal of favorable attention.

Among the miscellaneous accessory exhibits are to be found many items to arrest the attention of the seeker after novelty as well as the visitor bent on making purchases. One of these is the line of the Wray Pump and Register Co., comprising such specialties as the Kellogg compound double acting hand pump, and multiple gear compound pump with register. Wray collapsible and Tripley compound pumps,

pneumatic and multiple gear jacks and the Ezy coupling.

Another exhibit of interest to manufacturers is that of the Baker adjustable ball-bearing steering gear, which is a self-locking device in which the lost motion can be taken up at four different points.

Motors hardly can be termed accessories, though they are through necessity shown in this connection, some of the leading exhibits being those of the Brennan motors of the two and four cylinder, horizontal and vertical types and transmissions; the Twentieth Century motor, which is a convertible two and four cycle engine, and the Perfect kerosene motor. The latter starts on gasoline in the usual manner and employs a special type of vaporizer located over each inlet valve. The latter is kept operative by shunting a portion of the exhaust through the case containing it. It is made in two-cylinder horizontal type, rated at 20 horsepower, and four-cylinder vertical at 40, the dimensions, 5x5, being the same in both instances. Features of construction, apart from the vaporiser, are the use of copper jackets, leaded and ground in and self-contained mechanical oilers, the latter enclosed in the crank case of the four-cylinder type.

At the present rate of increase, it would seem that it will not be long before there will be such an array of makers of specialties and accessories that they would have no difficulty in mustering sufficient to hold a good sized show of their own, although this in fact is what it amounts to now, so many and diversified are the exhibits.

The following is the summary of exhibits and exhibitors:

Acme Motor Car Co., The, Reading, Pa.—Acme cars.
Adams Co., Dubuque, Iowa—Adams-Farwell air-cooled cars.
American Electric Novelty & Manufacturing Co., New York—Alvin self-starter.
Aerocar Co., Detroit, Mich.—Aerocars.

- American Locomotive Motor Car Co., New York.—American Berliet cars.
 American Motor Truck Co., Chicago, Ill.—Trucks.
 American Lamp Co., Chicago, Ill.—Searchlights and headlights.
 Apperson Bros. Automobile Co., Kokomo, Ind.—Apperson touring cars.
 Atwood Mfg. Co., Amesbury, Mass.—Lamps and generators.
 Auburn Automobile Co., Auburn, Ind.—Auburn cars.
 Aurora Automatic Machinery Co., Aurora, Ill.—Thor Motorcycles and parts.
 Austin Automobile Co., Grand Rapids, Mich.—Austin cars.
 Auto Accessories Mfg. Co., Detroit, Mich.—Rain covers and lap robes.
 Auto Importing Co., New York, N. Y.—Rochet-Schneider cars.
 Autocar Co., The, Ardmore, Pa.—Autocars.
 Automobile Supply Co., Chicago, Ill.—Accessories.
 Arnstein, Eugene, Chicago, Ill.—Accessories.
 Autocoil Co., The, Jersey City, N. J.—Spark coils.
 American Motor Car Co., Chicago, Ill.—Gasolene cars.
 Archer & Co., New York City—De Leon and Hotchkiss cars.
 Adams & Elting Co., Chicago, Ill.—Accessories.
 Badger Brass Mfg. Co., Kenosha, Wis.—Solar lamps.
 Baker Gear Co., Chicago, Ill.—Accessories.
 Bethlehem Steel Co., Bethlehem, Pa.—Automobile steels.
 Baker Motor Vehicle Co., Cleveland, Ohio.—Electric vehicles.
 Baldwin Chain and Mfg. Co., Worcester, Mass.—Baldwin chains, House patent spring recoil check.
 Bartholomew Co., The, Peoria, Ill.—Glide cars.
 Belden Auto Transmission Co.—Pittsburg, Pa.—Transmission gears.
 Beckley-Ralston Co., Chicago, Ill.—Supplies.
 Berkshire Automobile Co., Pittsfield, Mass.—Berkshire cars.
 Blomstrom Motor Co., C. H., Detroit, Mich.—Queen cars.
 Brennan Mfg. Co., Syracuse, N. Y.—Gasolene motors.
 Briscoe Mfg. Co., Detroit, Mich.—Hoods, tanks and radiators.
 Brown, William H., Cleveland, Ohio.—Dust guards.
 Brown-Lipe Gear Co., Syracuse, N. Y.—Transmission and steering gear.
 Byrne Kingston Co., Kokomo, Ind.—Kingston carburettors and specialties.
 Buckeye Mfg. Co., Anderson, Ind.—Lambert cars.
 Buffalo Electric Carriage Co., Buffalo, N. Y.—Electric vehicles.
 Buick Motor Co., Jackson, Mich.—Buick cars.
 Bowser & Co., S. F. Fort Wayne, Ind.—Gasolene storage outfits.
 Cadillac Automobile Co., Detroit, Mich.—Cadillac cars.
 Chicago Automobile Mfg. Co., Chicago, Ill.—Steam cars.
 Chicago Battery Co., Chicago, Ill.—Dry batteries.
 Cramp & Sons Ship and Engine Building Co., The, Philadelphia, Pa.—Manganese bronze castings.
 Chicago Pneumatic Tool Co., Chicago, Ill.—Tools.
 Columbus Buggy Co., Columbus, Ohio.—Electric carriages.
 Consolidated Mfg. Co., Toledo, Ohio—Yale Motorcycles.
 Continental Caoutchouc Co., New York, N. Y.—Tires.
 Cook Railway Appliance Co., Kalamazoo, Mich.—Jacks.
 Corbin Motor Vehicle Co., New Britain, Conn.—Corbin air-cooled cars.
 Culver Novelty Co., Culver, Ind.—Young's rotary carburetter.
 Cullman Wheel Co., Chicago, Ill.—Sprockets.
 Cleveland Motor Car Co., Cleveland, Ohio—Cleveland cars.
 Dac Automobile Supply House, New York, N. Y.—Sundries.
 Daimler Mfg. Co., New York, N. Y.—American Mercedes cars.
 Dayton Electric Mfg. Co., Dayton, Ohio—Apple ignition apparatus.
 Dayton Folding Tonneau Co., Dayton, Ohio—Artz Folding Tonneau.
 Dayton Motor Car Co., Dayton, Ohio—Stoddard-Dayton cars.
 Detroit Motor Car Supply Co., Detroit, Mich.—Bodies and tops.
 Detroit Steel Products Co., Detroit, Mich.—Springs.
 Diamond Chain & Mfg. Co., Indianapolis, Ind.—Diamond chains.
 Diamond Rubber Co., Akron, Ohio—Diamond detachable and solid tires.
 Dietz & Co., New York, N. Y.—Oil lamps.
 Dixon Crucible Co., Joseph, Jersey City, N. J.—Lubricants.
 Dolson Automobile Co., Charlotte, Mich.—Dolson cars.
 Dorris Motor Car Co., St. Louis, Mo.—Dorris cars.
 Duff Mfg. Co., Pittsburg, Pa.—Barrett jacks.
 Duryea Power Co., Reading, Pa.—Duryea cars.
 Detroit Auto Vehicle Co., Detroit, Mich.—Crown gasolene delivery wagon.
 Duplex Ignition Co., New York, N. Y.—Duplex spark plugs.
 Edmunds & Jones Mfg. Co., Detroit, Mich.—E. & J. lamps.
 Elmore Mfg. Co., Clyde, Ohio—Elmore cars.
 Electric Vehicle Co., Hartford, Conn.—Columbia gasolene cars.
 Electric Rubber Mfg. Co., Rutherford, N. J.—Tires.
 English Daimler Co., The, New York, N. Y.—Daimler cars.
 Excelsior Supply Co., Chicago, Ill.—Sundries.
 Firestone Tire & Rubber Co., Akron, Ohio—Firestone sidewire tires.
 Fisk Rubber Co., Chicopee Falls, Mass.—Fish mechanically fastened tires.
 Ford Motor Co., Detroit, Mich.—Ford cars.
 Franklin Mfg. Co., H. H., Syracuse, N. Y.—Franklin air-cooled cars.
 F. M. S. Cycle Mfg. Co., Chicago, Ill.
 Gabriel Horn Mfg. Co., Cleveland, Ohio—Horns and shock absorbers.
 G & J Tire Co., Indianapolis, Ind.—G & J detachable tires.
 Gaulois Tire Co., New York, N. Y.—Gaulois tires.
 Gearless Transmission Co., Glens Falls, N. Y.—Friction gearing.
 Goodrich Co., The, B. F., Akron, Ohio—Goodrich clincher and mechanically attached tires.
 Goodyear Tire & Rubber Co., Akron, Ohio—Goodyear mechanically fastened tires.
 Gray & Davis, Amesbury, Mass.—Acetylene and oil lamps.
 Grout Bros. Automobile Co., Orange, Mass.—Grout gasolene cars.
 Hancock Mfg. Co.—Specialties.
 Hardy Co., R. E., New York, N. Y.—"Star-Rite" spark plugs.
 Harris Oil Co., The A. W., Providence, R. I.—Lubricants.
 Hartford Rubber Works Co., Hartford, Conn.—Perfected Dunlop and Hartford detachable clincher tires.
 Hartford Suspension Co., New York, N. Y.—Truffault-Hartford Suspensions.
 Hicks Speed Indicator Co., Brooklyn, N. Y.—Speed indicators.
 Hendee Mfg. Co., Springfield, Mass.—Indian motorcycles and attachments.
 Heine-Watt Mfg. Co., Chicago, Ill.—Acetylene lamps and generators.
 Haynes Automobile Co., Kokomo, Ind.—Haynes touring cars.
 Holsman Automobile Co., Chicago, Ill.—Holsman automobiles.
 Hutchinson Electric Horn Co., New York, N. Y.—Electric horns.
 Hyatt Roller Bearing Co., Harrison, N. J.—Roller bearing axles and parts.
 Harrison Wagon Co., Chicago, Ill.—Automobiles.
 Heinze Electric Co., Lowell, Mass.—Coils.
 Hensel Storage Battery Co., Chicago, Ill.—Storage batteries.
 Hotchkiss Anti-Jolt Device Co.—Shock absorbers.
 Imperial Brass Mfg. Co., The, Chicago, Ill.—Wixon compound air pump, and Imperial Lyon headlight adjuster.
 International A. & V. Tire Co., New York, N. Y.—Detachable tires.
 Jackson Automobile Co., Jackson, Mich.—Jackson cars.
 Jones Speedometer, New York, N. Y.—Speedometers and odometers.
 Jeffery & Co., T. B., Kenosha, Wis.—Rambler cars.
 Kansas City Motor Car Co., Kansas City.—Kansas City cars.
 Kinsey Mfg. Co., Dayton, Ohio—Radiators, hoods, fenders, etc.
 Knight & Kilbourne Mfg. Co., Chicago, Ill.—"Silent Knight" gasolene cars.
 Knoblock-Heideman Mfg. Co., South Bend, Ind.—Ignition apparatus.
 Knox Automobile Co., Springfield, Mass.—Knox air-cooled touring cars.
 Lear Automobile Co., Oscar, Columbus, Ohio—Frayer-Miller touring cars.
 Limousine Carriage Mfg. Co., Chicago, Ill.—Bodies.
 Locomobile Company of America, Bridgeport, Conn.—Locomobile touring cars.
 Logan Construction Co., Chillicothe, Ohio—Logan touring cars.
 London Automobile Supply Co., Chicago, Ill.—Tops.
 Long Mfg. Co., Chicago, Ill.—Hoods and radiators.
 Lozier Motor Co., New York, N. Y.—Lozier touring cars.
 Look Electric Co.—Ignition apparatus.
 Lang & Lyon, Chicago, Ill.—Supplies.
 McCord & Co., Chicago, Ill.—Force Feed Lubricators.
 McGiehan Mfg. Co., New York, N. Y.—Odometers.
 McCrea Motor Truck Co., Cleveland, Ohio—Commercial vehicles.
 Madison-Kipp Mfg. Co., Madison, Wis.—Lubricators.
 Manhattan Storage Co., New York, N. Y.
 Marion Motor Car Co., Indianapolis, Ind.—Marion air-cooled cars.
 Maxwell Briscoe Motor Co., Tarrytown, N. Y.—Maxwell touring cars.
 Michaels, Co., H. Sargent.—Specialties.
 Mercedes Importing Co., Chicago, Ill.—Mercedes cars.
 Michelin Tire, American Agency, New York, N. Y.—Michelin tires.
 Midvale Steel Co., Midvale, Pa.—Steels.
 Milwaukee Rubber Works Co., Milwaukee, Wis.—Fawkes tires.
 Mitchell Motor Car Co., Racine, Wis.—Mitchell touring cars.
 Moline Automobile Co., Moline, Ill.—Moline cars.
 Moon Motor Car Co., St. Louis, Mo.—Moon touring cars.
 Morgan & Wright, Inc., Chicago, Ill.—M. & W. tires, clincher and detachable types.
 Motor Car Equipment Co., New York, N. Y.—Supplies and sundries.
 Motsinger Device Mfg. Co., Pendleton, Ind.—Motsinger auto sparker.
 N. Y. & N. J. Lubricants Co., New York, N. Y.—Lubricants.
 National Carbon Co., Cleveland, Ohio—Columbia dry batteries.
 National Motor Vehicle Co., Indianapolis.

Ind.—National touring cars.
 North Chicago Machine Co., Chicago, Ill.
 Nordyke & Marmon Co., Indianapolis, Ind.
 —Marmon air-cooled cars.
 Northern Mfg. Co., Detroit, Mich.—North-
 ern touring cars.
 Oliver Mfg. Co., Chicago, Ill.—Peerless au-
 tomobile jacks.
 Olds Motor Works, Detroit, Mich.—Olds
 touring cars.
 Packard Motor Car Co., Detroit, Mich.—
 Packard touring cars.
 Panhard & Levassor, New York, N. Y.—
 Panhard cars.
 Pantasote Co., New York, N. Y.—Pantasote
 for coverings.
 Palais de l' Automobile, New York, N. Y.—
 Renault and Delauney-Belleville cars.
 Peerless Motor Car Co., Cleveland, Ohio—
 Peerless touring cars.
 Pierce Co., The G. N., Buffalo, N. Y.—Pierce
 Arrow car.
 Pierce Engine Co., Racine, Wis.—Pierce-
 Racine cars.
 Pennsylvania Rubber Co., Jeannette, Pa.—
 Detachable tires.
 Pope Mfg. Co., Hartford, Conn.—Pope-To-
 ledro, Pope-Hartford, Pope-Tribune and
 Pope-Waverley cars.
 Premier Motor Mfg. Co., Indianapolis, Ind.
 —Premier air-cooled cars.
 Pungs-Finch Auto and Gas Engine Co., De-
 troit, Mich.—Pungs-Finch cars.
 Prest-O-Lite Co., Indianapolis, Ind.—Acet-
 ylene gas tanks.
 Prosser & Son, Thomas, New York, N. Y.
 Pneumatic Tire Protector Co.—Tire covers.
 Railway Appliance Co., Chicago, Ill.—Auto-
 cle wrenches.
 Rainer Co., The, New York, N. Y.—Rainer
 touring cars.
 Rapid Motor Vehicle Co., Pontiac, Mich.—
 Rapid Commercial cars.
 Reading Standard Cycle Mfg. Co., Reading,
 Pa.—Thoroughbred motorcycles and
 Reading Standard bicycles.
 Reliance Motor Car Co., Detroit, Mich.—
 Reliance cars.
 Reo Motor Car Co., Lansing, Mich.—Reo
 touring cars.
 Reilly & Sons.—Robes.
 Remy Electric Co., Anderson, Ind.—Remy
 ignition apparatus.
 Republic Rubber Co., Youngstown, Ohio—
 Tires.
 Rose Mfg. Co., Philadelphia, Pa.—Never-
 out lamps.
 Royal Motor Car Co., Cleveland, Ohio—
 Royal touring cars.
 Samson Leather Tire Co., New York, N. Y.
 —Samson leather tires.
 Schwartz Wheel Co., The, Philadelphia, Pa.
 —Wheels.
 Shelby Steel Tube Co., Pittsburg, Pa.—
 Steel tubing.
 Sherwin-Williams Co., Cleveland, Ohio.—
 Varnishes.
 Smith & Mabley, Inc., New York, N. Y.—
 S. & M. Simplex cars.
 Soules Motor Car Co., Grand Rapids, Mich.
 —Delivery wagons.
 Spicer Universal Joint Co., Plainfield, N. J.
 —Spicer universal joints.
 Sprague Umbrella Co., Norwalk, Conn.—
 Canopy tops.
 Speed Changing Pulley Co., Indianapolis,
 Ind.—Universal carburetters.
 Splittorf, C. F., New York, N. Y.—Ignition
 outfits.
 Standard Carriage Lamp Co., Chicago, Ill.—
 Lamps.
 Standard Oil Co., The, Chicago, Ill.—Fuels.
 Standard Roller Bearing Co., Philadelphia,
 Pa.—Roller bearings, axles, etc.
 Stearns Co., The F. B., Cleveland, Ohio—
 Stearns touring cars.
 Steel Ball Co., The, Chicago, Ill.—Hill pre-
 cision oilers.

Stevens Arms & Tool Co., The J., Chicopee
 Falls, Mass.—Stevens-Duryea cars.
 St. Louis Motor Car Co., St. Louis, Mo.—
 St. Louis cars.
 Studebaker Automobile Co., South Bend,
 Ind.—Studebaker commercial and pleas-
 ure cars.
 Swinehart Clincher Tire & Rubber Co.,
 Akron, Ohio—Swinehart tires.
 Synnstedt Machine Co., Pittsburg, Pa.—
 Electric vehicles.
 Temple, Ralph, Chicago, Ill.—DeDietrich,
 Hotchkiss and Panhard cars.
 Thomas Motor Co., E. R., Buffalo, N. Y.—
 Thomas Flyer touring cars.
 Timken Roller Bearing Axle Co., Canton,
 Ohio—Roller bearing axles.
 Tincher Motor Car Co., Chicago, Ill.—Tin-
 cher touring cars.
 Tokheim Mfg. Co., Cedar Rapids, Iowa—
 Gasolene outfits.
 Tritt Electric Co.—Ignition apparatus.
 Teel Mfg. Co., Medford, Mass.—Tire covers
 and dust shields.
 Turner & Fish, Chicago, Ill.—Steel wheels.
 Universal Electric Storage Battery Co.—
 Electric batteries.
 Valentine & Co., New York, N. Y.—Var-
 nishes.
 Vesta Accumulator Co., Chicago, Ill.—Igni-
 tion batteries.
 Ventilated Cushion Co.—Cushions.
 Vehicle Equipment Co., New York, N. Y.—
 Electric vehicles.
 Volta Battery Co.—Batteries.
 Veeder Mfg. Co., Hartford, Conn.—Odom-
 eters, tachometers, etc.
 Waltham Mfg. Co., Waltham, Mass.—Wal-
 tham-Orient cars.
 Way Muffler Co., Philadelphia, Pa.—Way
 neck mufflers.
 Wayne Automobile Co., Detroit, Mich.—
 Wayne touring cars.
 Warner Gear Co., Muncie, Ind.—Warner
 differential and steering gear.
 Warner Instrument Co., Beloit, Wis.—
 Speedometers.
 Webb Co., The, New York, N. Y.—Speed
 indicators.
 Webster Mfg. Co., Chicago, Ill.—Anti-skid
 axle.
 Webb Chain Tire Grip Co., New York, N.
 Y.—Chain tire grips and Lashar speed in-
 dicator.
 Western Tool Works, Galesburg, Ill.—
 Gale cars.
 Wheeler Mfg. Co., Detroit, Mich.—Tops.
 White Sewing Machine Co., Cleveland, Ohio.
 —White steam cars.
 Whiteley Steel Co., Chicago, Ill.—Parts.
 Whitney Mfg. Co., Hartford, Conn.—Whit-
 ney chains.
 Welch Motor Vehicle Co., Pontiac, Mich.—
 Welch touring cars.
 Windsor Automobile Co., Windsor, Ind.—
 Windsor cars.
 Woods Motor Vehicle Co., Chicago, Ill.—
 Woods electric vehicles.
 Wray Pump and Register Co., Rochester,
 N. Y.—Pumps and pressure regulators.
 Winton Motor Carriage Co., Cleveland, O.
 —Winton cars.

Constable Outwits the Garageman.

Muncie, Ind., boasts of a constable who lays no claim to knowledge of the automo-
 bile, but who did not allow that fact to
 phase him in carrying out an order of court.
 Armed with a writ of replevin and support-
 ed by a chauffeur impressed for the occa-
 sion, he descended upon a local garage to
 take possession of the machine of a judg-
 ment debtor. The garage keeper disputed
 his right and asserted his superior lien of
 \$180 for storage and repairs. But the con-

stable was provided in this respect as well
 and settled the bill. The garage keeper was
 still obdurate and requested an armistice in
 order to get the court on the telephone.
 When he returned after an unsatisfactory
 interview with the justice, constable and
 chauffeur had disappeared and with them
 the machine.

To Freshen the Leather Top.

With the increased use of the covered
 motor vehicle, there comes to the chauffeur
 a new problem in the proper method of
 caring for the leather top. It is a problem
 which has been worked out to a finish in
 the carriage business, and from which sev-
 eral lessons are now to be learned in this
 connection. Leather which is allowed to
 become dry through long exposure to the
 air without proper dressing, or which is
 frequently folded as in the case of a top
 which is open the greater part of the time,
 soon tends to crack and lose its surface.
 For the treatment of leather which has be-
 gun to go bad under such circumstances,
 the Carriage Monthly advises the following
 treatment:

"In case the top is more than a bit worse
 for wear, melt one-quarter pound of beef
 suet, and to this add one-eighth gallon of
 neatsfoot oil, best quality, incorporating
 the mass thoroughly. To these ingredients
 then add a tablespoonful of melted bees-
 wax, again shaking in a closed dish or can
 to insure intimate incorporation. Finally,
 the addition, with a resumption of shaking,
 of, say, one ounce of ivory black, completes
 the material. Rub on the top with soft
 cloths, taking due care to rub the mixture
 well into the leather. This mixture cools
 the leather and imparts to it a redeeming
 elasticity.

"In the case of the top that has suffered
 greatly from wear or harsh treatment, we
 would advise the use of a first-class top
 dressing, to be purchased ready for use,
 or shop prepared, as follows: Liquid
 asphaltum, one-eighth gallon; elastic fin-
 ishing varnish, one-eighth gallon; boiled
 linseed oil, one-sixteenth gallon; coach
 japan, one-sixteenth gallon; turpentine, one-
 eighth gallon; ivory black, one pound. All
 mixed completely."

No Hard Rubber Tires.

In all kindness may we ask why in thun-
 der certain correspondence schools that
 advertise to teach people how to automo-
 bile continue to speak of "hard rubber
 tires"? says Tire News. If the motor peda-
 gogues know anything about rubber—and
 they should not else advertise a course on
 tires—they should know that "hard rubber"
 is and has been since the days of Goodyear
 a hard, unyielding, ebony-like substance,
 such as combs, telephone receivers and the
 like are made of. There are no hard rubber
 tires; every rubber tire to-day, solid, cush-
 ion, pneumatic or freak, is a soft rubber
 tire. A tire teacher who writes about hard
 rubber tires is as anomalous as a grammar
 school principal who should say "I seen it."

WASHINGTON'S SHOW NOW ON

Purely Local, of Course, but Many of the big Cars are in Evidence.

Washington, Feb. 5.—The National capital's sixth annual automobile show, this year being conducted by the Washington Automobile Dealers' Association, which in turn is aided by the young but energetic Washington Automobile Club, the latter looking after the comfort and entertainment of visitors, was officially opened to-night in the Light Infantry Armory on Fifteenth street. That it is more complete and more gorgeous than its predecessors, is a fact, but it is the same old local show, brought up to 1906.

If the truth be told there are only six bonafide out-of-town exhibitors—two of these are from Baltimore, fifty miles distant; one of them, the Motor Car Co., shows the Peerless and Stevens-Duryea cars and the other, the Robinson Co., have a stand filled with lubricants. The Electric Storage Battery Co., of Philadelphia, exhibits what its name signifies and Jersey City is represented by a tire concern. The other two visitors—both hailing from the West—show motor boats and marine engines. In all there are 22 exhibitors, 73 per cent. of whom are local dealers. Thirty-one makes of cars are represented.

A glittering copy of "Old Glory" radiated welcoming waves of tri-colored electricity to the crowds who attended the opening to-night. This electric flag has a record. It is said to have created something of a sensation at the famous Taft banquet. It is suspended above the display of the Pope Mfg. Co. In point of numbers the attendance was a record-breaker. From the time of opening until the lights went out at midnight the scene presented in the auditorium was that of a good-natured hurly-burly. Dignified senators, members of Congress and representative lawyers, doctors, and business men and their wives, of course, rubbed elbows with chauffeurs and others of the less elite with condescending grace. The decorations are pleasing and present a woodland effect, and to harmonize with the scenic pastoral elaboration the band played airs from the comic opera suggestive of green fields, babbling brooks and leafy bowers. The floor was arranged in green as a lawn, with clinging vines about the walls, while growing palms and other plants and rustic settees were in evidence on all sides, the scene being bathed in a daylight of electricity. Overhead were vari-colored electric stars and other devices, giving a tint of mellowness to the picture.

The show will continue throughout the week. The complete list of exhibitors and the wares they display follows:

Williard Automobile Co., Washington, Jackson and Dolson cars and Swinehart tires; Howard & Rhine Co., Washington, Haynes and Auburn cars; Wm. C. Robin-

son & Sons' Co., Baltimore, lubricants; Thomas & Helbert, Washington, Maxwell cars; Commercial Automobile and Supply Co., Washington, Wayne, Logan and De Mar cars; Reo Motor Car Agency, Washington, Reo cars; National Automobile Co., Washington, Thomas, Packard, Buick, Studebaker and Olds cars; Motor Car Co., Baltimore, Peerless and Stevens-Duryea cars; S. J. Meeks' Sons, Washington, Lambert cars; Rudolf, West & Co., Washington, supplies; Haughton Automobile Co., Washington, Premier and Gale cars; National Electrical Supply Co., Washington, supplies; Electric Storage Battery Co., Philadelphia, storage batteries; Washington Electric Vehicle and Transportation Co., Washington, Columbia cars; Pope Mfg. Co., Pope-Hartford, Pope-Toledo, Pope-Tribune and Pope-Waverly cars and supplies; Cook and Stoddard Co., Washington, Locomobile, Franklin, Baker, Cadillac and White cars; Charles E. Miller & Bro., Washington, Ford and Columbus cars and Indian motorcycles; Voorhees Rubber Co., Jersey City, N. J., tires and repair outfits; Detroit Motor Works, Detroit, Mich., marine engines; Automobile Tire and Repair Works, Washington, tires; Truscott Mfg. Co., St. Joseph, Mich., motor boats and engines; Welsbach Light Co., Washington, lights.

Engineers Indorse Freylinghuysen.

Section Eight of Senator Freylinghuysen's iniquitous measure which reads: "No motor vehicle tire shall be fitted with a chain or other metal grip device when used upon macadam or other roads, except upon asphalt, cobble, Belgian or brick pavements," was officially endorsed by the Association of County Engineers of New Jersey at its annual meeting last week. A resolution to that effect was passed, preceding which the engineers engaged in a long technical discussion of the destructive effects of high-powered automobiles upon the improved roads of the State. The engineers, of course, said nothing about the bad effects of metal horseshoes or narrow steel tires on horse drawn vehicles.

Post Sues for Rear-end Collision.

David J. Post, of Hartford, Conn.—he of the Veeder odometer—has gone gunning for the Hartford Street Railway Co. On October 7th last, while driving his car, Post was butted into from the rear by one of the Hartford street cars. The repairs cost him \$61.65 and the new equipment made necessary by the rear-end collision, \$65. Post has entered suit for these sums and also for the loss of the use of his car for the 12 days that it was laid up, or \$350 in all.

Jersey Says "Soak 'em" Again.

New Jersey's State Tax Board has come down hard on Atlantic County. It directed the local assessors to tax all automobiles as personal property and "to be sure the rate is not too low."

DISCUSSION IS DEFERRED

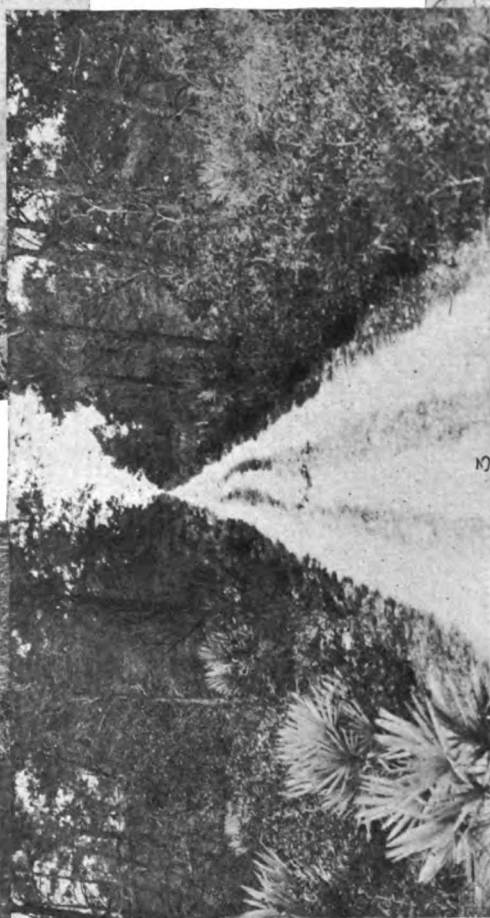
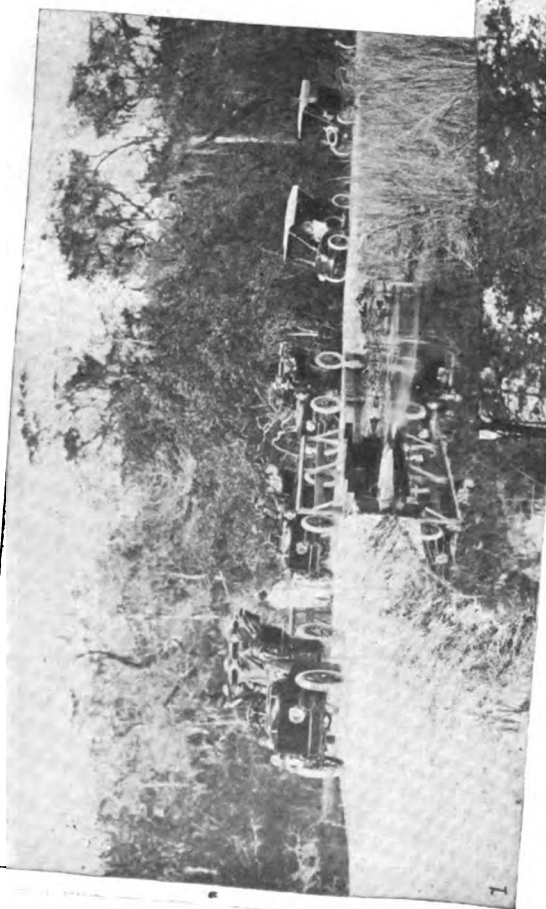
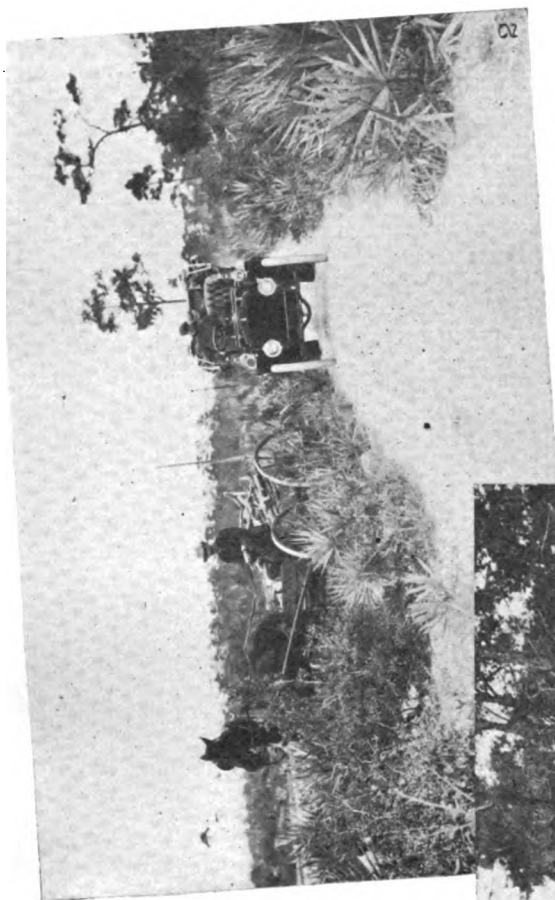
Hearing on Freylinghuysen Bill Goes Over After a Few Preliminary Outbursts.

To the observant but uninitiated stranger Trenton's streets on Tuesday must have presented a foreign and puzzling spectacle. Soft felt hats, red neckties, regulation boots, and flowing hirsutic decorations were very much in evidence, and the wearers of these adornments pedestriated along the streets of New Jersey's capital with that lope peculiar to those who have followed the plow-shares the greater part of their lives. The unknowing might have marvelled thereat and wondered if the State fair was in progress, but the Trentonian could have told him that all the motorphobes of the State had gathered to discuss and endorse, of course, the proposed measure introduced by Senator Freylinghuysen, which is passed, will practically bar automobiles from New Jersey highways.

Tuesday was the date originally set for the hearing, but the automobilists had been assured that it would be postponed to enable them to get their defense in presentable form. The farmers, however, evidently did not understand this arrangement and they had come prepared to fight. They were given a partial hearing in the Senate chamber when the meeting was adjourned to reconvene on Tuesday, 20th inst.

Clarence E. Case, a lawyer, who lives in Somerville, where also resides a part of the year the author of the iniquitous measure, presented a petition in favor of the bill and spoke at length of "harm" automobiles do. He was followed by John P. Murray and then a letter was read from somebody in the Oranges. The Society for the Prevention of Cruelty to Animals has taken upon its shoulders the burden of work usually done ministerial associations, Epworth Leagues, and such, for Colonel J. A. Edwards, who spoke for that association, put forth a novel though rather amusing plea, why automobiles should be ruled off the road. He said there were places in the State where the women had not been to church for a year because of the tremendous rate of speed at which machines went by their doors. There were always more machines out on Sunday than any other day. Dr. Young, the last orator, was honest at any rate and said he spoke for the "hayseeds." "Automobilists seemed to think no one else had any rights," he vouchsafed. "They would not slack up for the farmers. They had no sympathy for the man on the road. They blew the horn, and if the farmer did not get out of the way, so much the worse for the farmer. If laws were not enforced, the next thing the farmers would do would be to shoot the auto man."

Then the meeting broke up and the janitor opened the windows to let some fresh air into the room.



Scenes Along the new Florida Road from Palm Beach to Miami.

"Sampling" Florida's New Road.



Of much more real interest to the visitors at the frost-blighted Ormond speed carnival, was the new road from Palm Beach to Miami, which many of them "sampled" before leaving for home.

Good roads are not numerous in Florida and where they exist they are not of great length. This Palm Beach-Miami highway, however, covers a stretch of 70 miles and enables Florida to be seen as it should be seen. It takes one into the very heart of the country, which to visitors from Northern climes, is not short of a revelation. Among other things it gives him a truer insight into the so-called "negro question," for the road passes many of the squalid negro settlements that well betoken the shiftless nature of the black man of the Southern backwoods. The convict gangs,



A Halt for Oranges.

When the Locusts Swarm.

"High noon-tide in India. We are nearing Poona and everlasting sunshine and cloudless sky is our portion. Suddenly on the distant horizon a little cloud appears 'no bigger than a man's hand.'"

"We shall actually have rain," we remark, but the native boy corrects such an impression, says a writer in the *Motor Car Journal*.

"Locusts, sahib." At first we made light of the matter, but in half an hour "the scene

was changed," as the poem hath it. Try and picture a snowstorm, blinding and beating with relentless fury on your car, and further endeavor to imagine each flake transformed into an insect some two inches long and you may realize somewhat what a "locust storm" is like. The air became so black it was impossible to see the hedge on either side of the road, and folding our arms over our faces to protect them, we awaited the settlement. Locusts do not sting humans, but they are awfully sticky, and it is

made up almost wholly of negroes, also "speaks a piece."

The flat nature of the Florida country also impresses the man who resides where hills abound, but the midwinter greenery, the gold-laden trees of the orange groves, the scrub-palms and those that tower to mighty heights, the moss-hung trees that usually skirt a dismal swamp reeking either with green scum or blooming water lilies—all these, while they might soon grow monotonous, are yet so strange to northern eyes that for the nonce, at least, each holds some special charm.

The Palm Beach-Miami road is but a narrow strip—so narrow that when two vehicles meet, one or the other must literally "take to the tall grass." But motorphobia is not yet rampant in the South and the inhabitants are usually so obliging that it is rare that the motoring visitor is not "given" the whole road.

a weird sensation to be obliged to pick the little insects from one's clothes.

"Several misguided miscreants had crawled up our trouser legs so that it took some time to get under way again—and then, most horrible of all, we began to side-slip on the greasy creatures! But for most careful going we should have had a nasty accident. We heard afterwards that it is not an uncommon occurrence for trains to slip off the metals when a swarm of locusts has settled on the line."

FIRESTONE

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128 Firestone
Side Wire Motor Tires
against
80 of all Other
Makes of Solid Tires.

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**Honest Statements Backed by Honest Tires
Bring this Continued Success.**

We can advise you on your tire requirements intelligently and if given an opportunity will
advise you honestly. Neither in our advertising nor in person do we make false or
misleading statements to influence sales.

Our interest lies in furnishing you a tire that will make your commercial vehicles an
economical success.

We have given years of time and spent thousands of dollars to bring tires for commercial
vehicles to their present state of perfection, and will be glad to call upon and give you
the advantage of our experience and properly fit your vehicles with tires that
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BOSTON, 9 Park Square.

CHICAGO, 550 Wabash Avenue.
DETROIT, 240 Jefferson Avenue.

DAVIS'S WONDER-WORKER

He Disdains Gasolene, Carburettors and such Things and it Winds up Itself.

Peoria, Ill., is proud! It has an inventor, one L. O. Stevens by name, but this fact alone would not be the cause for so much jubilation and exultation were it not that Stevens is progressive. More than that, he is a revolutionist and naturally his attention and force will be directed toward reforming present day methods of automobile construction.

Stevens's wonderful machine differs from all standard makes in that it uses neither gasolene, steam nor electricity for its motive power. There will not be that vexatious trouble with the carburetter for Stevens's wonderworker is without "lungs" and is neither air nor water cooled. "In fact it is so simple that at first thought it looks more like an idle dream of a crank than a machine based upon actual laws of machinery," is the way a local paper puts it.

Like numerous others of its kind which crop out at spasmodic intervals, each and every one of which has yet failed to startle the world by its cleverness and turn topsyturvy accepted standards of motor car construction, the propelling power of this particular machine will be springs, just ordinary springs, each fifty feet long and two and a half inches wide. The inventor says it will take eight of these springs to run the car.

According to advance information these springs "will run upon a set of cogs which operate a friction disk, and which will run nine hours and fifty-five minutes at sixty revolutions per minute. The speed control will be a unique feature of the new machine. It can be run at any speed and reversed as fast as it can go forward while to stop the machinery, all that is necessary is to throw the cone connected with the driving wheels in the center of the disk."

"When the springs run down," this interesting description goes on to explain, "there is an electric storage battery connected with the springs to wind them up again. These springs are wound up from the inside, so winding them does not interfere with the running of the machine. The machine will run easier than any at present, as there is not so much vibration and it will be noiseless. Its chief advantage will be in saving extensive repairs and the simplicity of construction, the gearing all being placed in one solid frame to prevent jamming."

Mr. Stevens has disposed of half his interest in the patent and, of course, a company will be formed for their manufacture—if sufficient capital can be interested.

Showing Just how it Works.

Many attempts have been made—by description, illustrations, working models, and otherwise—to explain the working of

the ordinary four-cycle automobile engine so that the lay mind might understand it; but the peculiar nature of the problem has kept these attempts from meeting with much success. Now, however, by an ingenious application of the moving-picture principle, it is made possible even for the most untechnical to grasp the idea in an instant. It is by means of a mutoscope thumb book, which is given away by the Reo Motor car company of Lansing, Mich., that this advance in popular education is accomplished.

Gilbert of the Firestone.

Having had not a little to do with the marked success of the Firestone solid tire, when the Firestone mechanically fastened pneumatic tire came along last month, Joseph M. Gilbert, sales manager of the



Firestone Tire and Rubber Co., Akron, Ohio, "saw his duty and done it." The sensational \$500 Ford runabout afforded the opportunity. Gilbert grasped it so promptly and so well that the New York show was but two days old when he had the Ford contract for 2,000 pairs of the new Firestone tire "signed, sealed and delivered." It was one of the real coups of the show and gave the new tire a big boost, just as a tire of such quality will give the astounding little Ford car a further claim to serious attention.

Mr. Gilbert, a most agreeably aggressive man, is further prosecuting the good work, and with principals of the same stamp behind him, other coups of the same sort are not improbable, the name Firestone standing high and the Firestone staff being well organized; indeed the entry of a Firestone pneumatic tire into the field was in itself in the nature of an event, and one which gave more room to the Gilbert elbow.

Municipal ventures are evidently conducted on a profitable basis on the other side. The Coventry, England, town council has decided to expend a further sum of \$25,000 for the purchase of electric motor cars. The previous investment of \$35,000 for similar purpose is earning about 12 per cent.

EFFECTS OF STRIPING

How it "Sets off" a Car—Some Combinations that are Effective.

"Apparently the automobile depends less upon the stripping for the show it makes in the world, and the applause it wins by virtue of its smart appearance, than upon certain other features that command public attention," says a writer in the current issue of the Carriage Monthly. "At any rate, you observe upon the rank and file of machines a paucity of striping effects. This is in sharp contrast to the enormous display of panel colors of a strikingly vivid pattern, and it suggests the impression that great riches of color rather than discriminating selection govern in the matter of choosing supposedly appropriate pigments.

"Striping upon the automobile equipment is usually of an exceedingly plain description, and very largely consists of straight line work, particularly upon pleasure vehicles. And, after all, what is more effective, without ostentatious display, than, for example, upon a cool, rich expanse of gray, a single $\frac{1}{8}$ -inch gold line, with the distance line on either side of ivory black, drawn a space heavier than a hair line. This is a popular striping combination for a gray pattern, and it carries with it a pronounced suggestion of elegance. The real effect is obtained, however, not so much by reason of the combination itself, as by the accuracy which distinguishes the display of the lines upon the surface. In other words, the precision, uniformity and accuracy practiced in drawing the lines, exerts a powerful—if, indeed, a not all-controlling influence upon the appearance of the vehicle when finished.

"To cite another example: Automobile yellow, a color that fills the eye with visions of the prolific daisy, if striped with a $\frac{1}{8}$ -inch line of dark blue, with double lines of black thrown at a $\frac{1}{4}$ -inch space either side, furnishes a beautiful color combination with much of the overpowering effect of the yellow, studied apart from other colors, eliminated. Or a deep maroon, rich in itself, but dependent to a very great extent upon some appropriate striping combination to draw the real elegance of its tone into bold relief. Stripe this maroon with a 3-16-inch line of ivory black, paralleling it with hair lines of genuine gold bronze, the whole combination being drawn in straight but marvelously accurate lines, and you have an example of panel color and striking effects scarcely surpassed. Likewise cream color which stripe with a $\frac{1}{8}$ -inch or 3-16-inch line of aluminum, and distance line it with dainty stripes of Tuscan or Indian red, or, for a more vivid effect, with Twentieth Century red. Many persons have seen the dark, blue leviathans, nearly black from some points of view, and decidedly blue from still others, scuttling adown country roads or rolling magnificently along city pavements,

and they have invariably delighted in the picture of color.

"These dark, fine blues, too dark to look frigid, and too rich in their measure of color effect to look gloomy, striped with a ¼-inch line of ivory black, to better accentuate the splendor of the blue, and distance line with fine lines of gold, furnish an example for the student in color problems to earnestly contemplate.

"Possibly the red automobile, the fiery, untamed and always livid vehicle that brings trouble to the mounted police and drives the farming community into seclusion, is the most difficult to stripe without offense to the average man. Red is a color peculiar in this respect, at least. It does not permit, without violent transgression of certain clearly defined laws of color harmony, the use of other than a comparatively restricted class of pigments for striping. The graduating stripe, namely, the stripe showing various shades of red overlapping one another, may be advantageously used upon any of the brilliant shades of red. Black lines are always in order, but beyond these—Beware."

Where do They Come From?

"Who supplies all the bent nails that are so made that the sharp point, owing to the weight, always sticks upward, no matter how they are thrown down?" asks an overseas contemporary. Someone must supply them wholesale, for whenever an automobile road race of lesser importance than the star classics are run off in France, many thousands of these bent nails are to be found. During a recent race, the forest roads near St. Germain were literally strewn with them—so much so that it was possible to pick up hundreds of them in a few rods. They were alike, new and bright, fresh from the factory and the strewn roads being long, such a generous supply must have entailed a considerable outlay of money to provide.

The first automobile has made its appearance at Nairobi, in the East African protectorate. It was imported by a general stores company and will be used for commercial purposes.

Rhode Island Chauffeurs Organize.

Like their New York brethren, the professional chauffeurs of Rhode Island have formed an organization—the Rhode Island Professional Chauffeurs' Association—for social purposes and mutual protection. The club starts with thirty-four members, and cosy rooms have been fixed up at 109 Washington Street, Providence. These officers were chosen to guide the club's destiny: President, Edward Shay; vice-president, Alfred Moille; secretary, Frank Weedin; treasurer, George Champlin; board of governors, Andrew Denver, Douglas Rice, Edward Shay, Alfred Moille, Frank Weedin and George Champlin.

How the Clerk got Cars.

Vaingloriousness was acknowledged to be his besetting sin by a clerk of the name of Forbes, who has succeeded in passing himself off on the English public as a baron of that name. With the help of high class note paper and an assurance out of all proportion to his means, he was able to purchase, without payment, a car from one firm, and sell it to another for payment. He gave orders to motoring firms about London with such success that 200 County Court summonses were found among his belongings when arrested. Now he has commenced a twelve months' term where motor cars will not attract him.

International Contest in August.

It has been decided that the proposed international reliability contest known as the Circuit European, which is being promoted by the Automobile Club of France, in conjunction with other continental clubs, shall be held during the first half of August next. It has also been arranged that there shall be separate committees of control for each country through which the competitors will pass in the course of their long journey, which will be 5,000 kilometers, or about 3,125 miles.

Got \$2,500 for a Finger.

A verdict for \$2,500 damages for a broken finger and a few bruises, was awarded a Louisville, Ky., insurance man, T. Grant Slaughter, by name, against Wesley Gregory, another insurance man of the same city last week.

According to sworn testimony Gregory, in an automobile, was going at the rate of only eight miles an hour when the accident occurred and the evidence made it appear that had the plaintiff exercised due care when alighting from a street car, it would not have happened. The jury, however, brought in a verdict for \$2,500.

Date of License Hearing Advanced.

An order has been handed down by the Supreme Court advancing for argument for the week of February 19, the appeal from the recent decision of Common Pleas Court No. 4, in the pending conflict over the Philadelphia automobile ordinance. The question to be passed upon is whether the act of the State Legislature did not supersede Council's ordinance, and whether automobilists shall pay both a State and county license or operate under a single license issued by the Commonwealth.

Ohio to Organize Association.

Ohio will have a State automobile association which will become a part of the American Automobile Association if the "feelers" sent out by the Cleveland Automobile Club are productive of good fruit. A meeting has been called for February 22, during show week, when delegates from the various clubs will meet to decide the matter.

After the Glass Strewers.

They have had so much tire trouble from broken glass and from petty thefts of accessories that the motorists of Cleveland, O., have complained to the chief of police. He has issued orders, of course, and also asked the motorists to get the names of any persons seen throwing glass or other sharp substances in the streets.

Here's the Automobile Grocery.

It is now the automobile grocery, if you please. The Philadelphia Portable Store Co. has been formed in Trenton, N. J., to peddle groceries in automobiles. It will no doubt prove a blessing to the always too-busy-to-go-out housewife.

Prest-o-Lite Gas Tanks

which put an end to lamp troubles of every sort and make the lighting of motor cars as safe, as simple and as satisfactory as the illumination of one's home

Are Now Being Made in Two Sizes.

30 CUBIC FEET, \$35.

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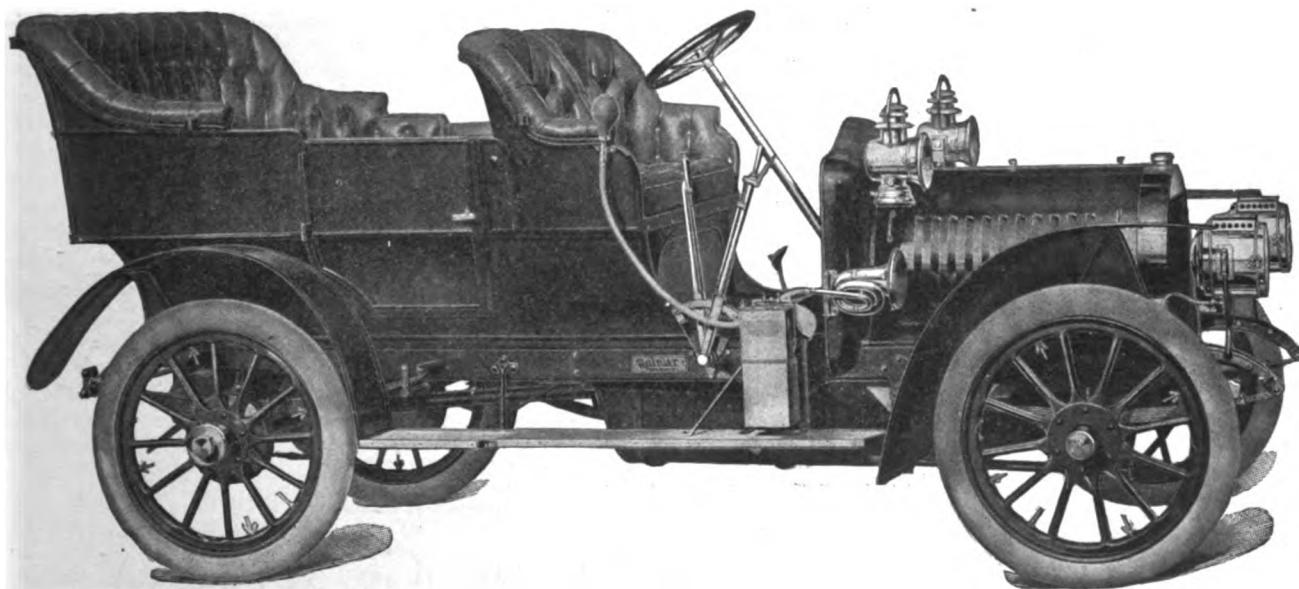
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1906 MODEL B, 30-35 H. P. PRICE, \$4,000.

GUARANTEED FREE OF REPAIRS FOR ONE YEAR.

During 1905 the Rainier was the hit of the season in New York, the most critical of markets. Not a single dissatisfied customer, only favorable comments everywhere, and orders galore for the new model from former users. Before you decide, investigate the Rainier, carrying the world's broadest automobile guarantee.

Make and break spark. Simms-Bosch Magneto. Bevel gear drive.

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Good Agents wanted in unassigned territory.

The Rainier Car will be exhibited at the Armory Show in Chicago.



HIGH GRADE MOTOR BOATS

20-21-26 ft.
\$325. to \$800.
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LOZIER MOTOR CARS
are built along most beautiful
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appearance being properly
in keeping with their high-
grade mechanical construction.

By virtue of the extraordinary care
with which every part of a LOZIER car is
put through production, our output for
the year will be but 150 cars—*real cars—made
right—the only way we know how to build.* Our
new Catalogue, Book Twenty-two, treats
briefly upon the general features of LOZIER
MOTOR CAR construction, and we
would be glad to send you a copy.

Three sizes of cars—Type C, 35 H. P., Type D, 40
H. P., and Type E, 60 H. P., ranging in price from
\$4,500 to \$8,000 will be the schedule for the year.

**Limousines, Landaulets and
Touring Cars now delivering.**

HIGH GRADE MARINE MOTORS

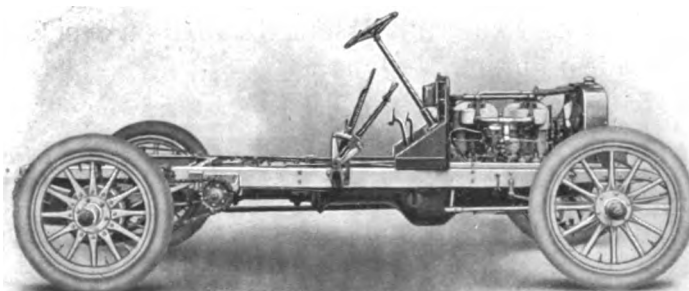
2- and 4-Cycle
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ABOUT PATENTS GENERALLY

Some Plain Truths for Inventors—Secrecy and Suspicion that Count for Nothing.

Every mechanic who is a mechanic, and nearly everyone of mechanical bent, is constantly studying to improve the methods, devices or machines by which work is done, and there is scarce one but has some more or less material conception which he considers worthy of a patent, says the American Machinist.

Such immense fortunes have been made through the medium of patents that they are often held in a degree of esteem bordering on reverence, and we are apt to think of the patent itself as being the direct source of wealth, rather than the mere shield against competition which it is; so it behooves us, before we invest sixty or more hard-earned dollars in getting a patent, to stop and consider just how the returns are to come. Contrary to the general shadowy impression, which patent attorneys are careful not to dispel, capitalists are not generally watching the Patent Office Gazette for a chance to invest in every untried invention reported therein, and the cost of procuring the patent is usually a very small fraction of the amount required to get the article started on the market.

An idea is not patentable, but any novel combination of parts is, whether it be practical or not; and the Patent Office gives no information as to its practicability; hence it is obvious that the first thing to do with our bright mechanical ideas is to put them in material working form and to test their practicability. A patent gives no power. It is at best only a guarantee from Uncle Sam that no one but the patentee will have the privilege of making and vending the device covered by it; and, if no one else wishes to make such device, it is obviously useless to patent it. Having material assurance of the practicability of our invention, it is well, before proceeding, to apply for a patent, to find if anyone else wants to make it and if he is willing to pay for the privilege of doing so; or, if we wish to engage in the manufacture ourselves, to learn something of the market for it.

In devising the subject of a successful patent, mechanical ability is not more essential than is good judgment as to what will sell. Once a want becomes known there are thousands of skilled mechanics ready to attempt the supply of it; and, where a thousand men, skilled in the line to which it is related, set about to supply a want, nine hundred of them will produce devices essentially similar; so the chance of anyone making a marked success is comparatively slight; but wealth and honor await the man who foresees a demand, supplies it, and adequately protects his

The fledgling inventor is apt to be chary of publicity for fear that someone will steal his ideas; but, after attempting to market a few patents, he is apt to arrive at a state of mind which would cause him to feel flattered if somebody would steal one. There is little danger of theft of this kind, most of the supposititious cases being simply cases of coincidence; and, while it is well to have drawings of one's device, dated and signed by two witnesses, which may be used to prove priority of invention in case of need, it is also well to know how the device strikes other and unbiased people, before investing much in it, for the glamour of one's own invention is likely to dazzle his eyes and warp his judgment, while his intimate friends, with the best intent, are prone to flatter.

While it is well to get as many opinions as possible, seeking rather the unfavorable than the favorable, they are of use only to clarify one's own judgment, which must needs be the final basis of decision. It is well to test a thing by placing it tentatively on the market and, if people who are so ready to say "it is a good thing" evince a disposition to buy, there is yet ample time to procure a patent, as a thing may be on the market and in public use for two years before it becomes public property.

It is said, doubtless truthfully, that over 90 per cent. of all business enterprises fail; and, if this is true of old and tried lines, where is the occasion for surprise if 99.9-10 per cent. of the new ones do likewise? In perfect accord with the divine law of compensation, in all business where there is a possibility of gain, a risk proportionate to the prospective gain must be taken. No man can tell with any degree of certainty whether a device will sell or not, and an "expert" is about as likely to err as another, in some respects more so.

To form an opinion of value as to the selling possibilities of an entirely new device requires a broad knowledge of human nature and its needs; a knowledge likely to be somewhat cramped, in the mind of a salesman, by the limitations of the particular line with which he is engaged and the class of customers which he reaches. A hardware salesman is apt to be unable to see any possibilities in anything which is not solid and substantial, while one carrying a line of cheap jewelry would be likely to see but little merit in an improved form of stump puller.

There are probably few, if any, devices on the market to-day which have a more extensive sale than the sectional book-case; and it is told of the inventor, by one in a position to know, that, at the time of its conception, he was at work on a folding crate for the shipment of chickens; and that, after a thorough canvass and discussion, in which discussion several "experts" took part, it was decided without a dissenting voice that, while the book-case might sell to a few professional men, the market

would be very limited as compared with that of the chicken crate, so it had better await the completion of that device—and wait it did. The sales of the chicken crate possibly reached a dozen (if memory serves, most of those were returned), while the sales of the book-case have been beyond estimate and are still growing.

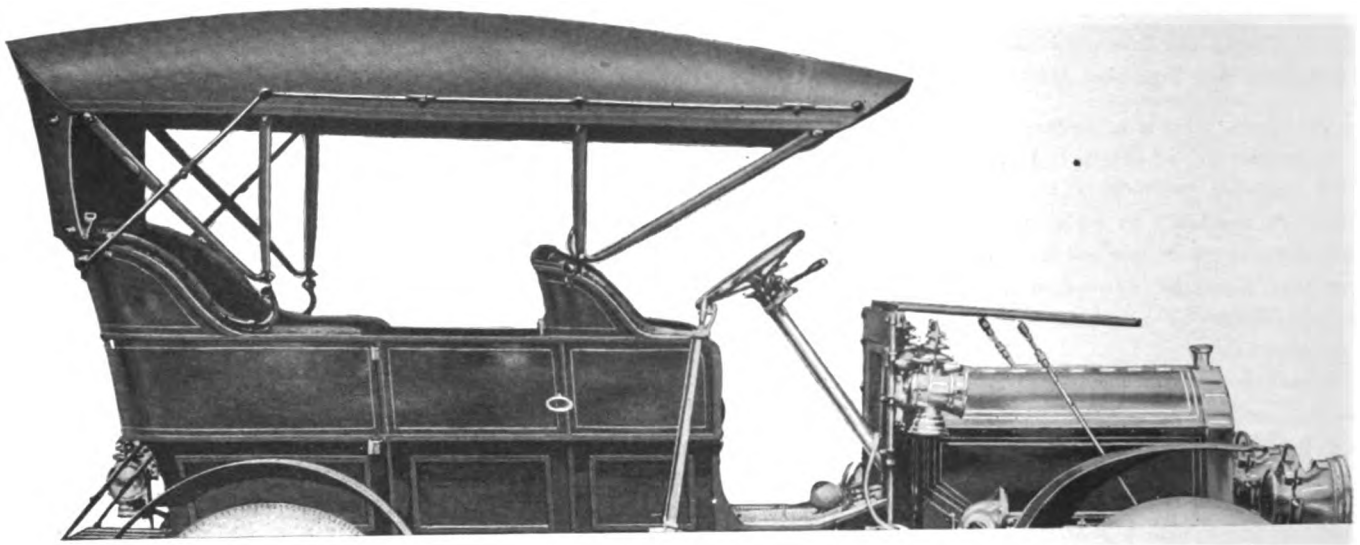
Things which the most perspicacious business men think will have a large sale are often found to meet with no favor whatever, while things at which they laugh, as ridiculous, sometimes have phenomenal sales. No one can tell until he tries. If he fails, he has the satisfaction of feeling that he has evolved something from his own brain of which future generations may make use, and his name is at least enrolled among many which are great—more permanently recorded than if it were inscribed on a tablet in the Hall of Fame; and, too, it is an open question if he who tries and fails, and tries again, is not entitled to more credit than are many of those who succeed; as to the cash returns, that's different.

On Keeping the Contacts Clean.

It is essential to the successful use of the high tension distributor, whether mounted on a magneto or used in some system of synchronized ignition employing a separate coil and some external source of current, that the contacts be kept clean and free from the grindings of the metal parts. There is certain to be a due amount of wear on the parts, no matter how well they may be constructed, and as a result of this, they become coated with a thin film of dust in time, which is composed of the grindings of the parts themselves, compounded with a small amount of oil. To remove this, it is necessary simply to take off the cover and wipe the parts with a rag slightly damped with oil. After this has been done there is little likelihood of trouble again occurring for some little time. Other than this, there can be little annoyance connected with the use of a distributor of this type. It must be borne in mind, however, that the high tension current is much harder to insulate than the primary, handled in the more ordinary types of commutator, and hence a greater amount of care should be exercised to keep the vital parts clean at all times.

For Cleaning the Upholstery.

"To clean and to remove stains from light-colored leather," says a motorist who has tried it, the following formula may be used with good results: "Take one pint of milk and boil it, let it cool and add one drachm of hydrochloric acid, and one drachm of sulphuric acid. Shake well and add half a drachm of oil of lavender, one pint of vinegar and the white of one egg beaten to a froth. Keep in a tightly corked bottle. Rubbed on the leather with a cloth it greatly improves its appearance and removes stains."



This is the Pierce Great Arrow Victoria Tonneau, 40-45 H. P., with semi-enclosed top. Price without top, \$5,000. Semi-enclosed top, \$350 extra.

The Pierce Arrow is a car whose final destination is neither the scrap heap nor the machine shop. There are probably more Pierce Arrows of old models now in satisfactory use than any other make of car. A Pierce Car of several years back is a better investment than many 1906 cars. The greatest obstacle to the ownership of an auto to many people is the cost of maintaining—not the ordinary garage charges, but the far greater expense of repairs, adjustments and the like. Even if you do not mind the cost of these, the annoyance and delay when a car breaks down takes away from the pleasure of operating it.

In the famous Glidden Trophy run the Pierce Arrow went one thousand miles without a single adjustment. More than that, it did not require an expert chauffeur or mechanic to do this. The performance can be duplicated by any American gentleman with a Pierce car.

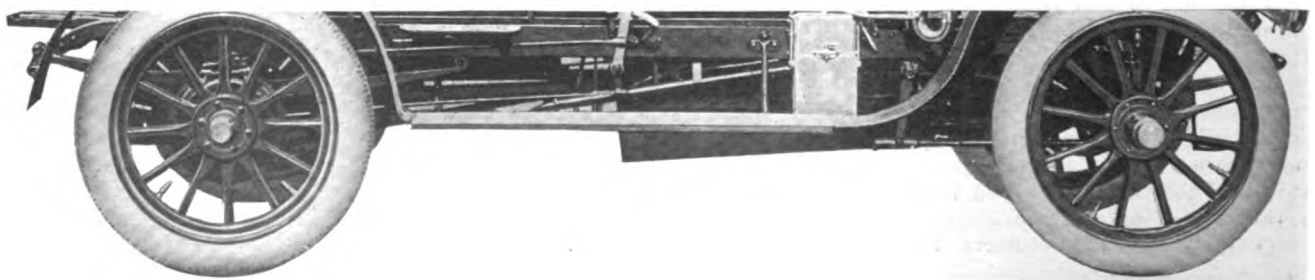
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 Chicago, Ill.—H. Prulman & Co., 1,321 Michigan Ave.
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 Hartford, Conn.—The Miner Garage Co., 120 Allyn St.
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 New York, N. Y.—Harrolds Motor Car Co., Broadway, 58th-59th Sts.
 Oakland, Cal.—The George N. Pierce Co., 1,013 Clay St. (Wholesale).
 Philadelphia, Pa.—Foss-Hughes Motor Car Co., 201 North Broad St.
 Pittsburg, Pa.—Banker Bros. Co., Baum and Beatty Sts.
 Portland, Me.—J. A. Dowling.
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 Providence, R. I.—The Shepard Company.
 Rochester, N. Y.—U. S. Automobile Co., 21 Plymouth Ave.
 St. Louis, Mo.—Western Auto. Co., 4,701 Washington Boulevard.</p> | <p>St. Paul, Minn.—C. P. Joy Auto. Co., 368 Minnesota St.
 San Francisco, Cal.—Mobile Carriage Co., Golden Gate Ave. and Gough St.
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 Scranton, Pa.—Standard Motor Car Co.
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 Sheffield, Pa.—C. H. Smith Co., Ltd.
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 Troy, N. Y.—Troy Auto. Exchange, 22 Fourth St.
 Utica, N. Y.—Utica Motor Car Co.</p> |
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The Week's Patents.

810,206. Locking Device for Motor Cars, Automobiles and the Like. Isaac W. Hey-singer, Philadelphia, Pa. Filed Aug. 21, 1905. Serial No. 275,065.

Claim.—1. In a wheeled vehicle, a locking device consisting of the combination of two operative units, the first unit secured permanently to the wheel or axle upon which said vehicle travels, and adapted, when properly connected with the second of said units, to communicate motion to an operative part thereof, and the second unit, detachably connected with first unit, and adapted to be disconnected therefrom, said second unit provided with a primary moving part adapted to be directly moved by the movement of said first unit, in combination with a more slowly-moving secondary element connected therewith, and adapted to be moved along a definite line of travel, together with a fixed abutment against which said secondary element shall, after an interval, be arrested, and thereby arrest the movement of the primary moving part of said second unit, and of the connected first unit, and so arrest the travel of said vehicle, substantially as described.

810,435. Rotary Explosive Engine. Frank Reynolds, Syracuse, N. Y. Filed Nov. 2, 1903. Serial No. 179,481.

Claim.—1. In a rotary explosive-engine, the combination of a case comprising two intersecting cylindrical compartments and formed with two separate explosion-compartments each provided with a port affording communication with its respective cylindrical compartment, suitable igniters in the explosion-compartments, parallel rotary shafts extending axially through said cylindrical compartments and geared to rotate in opposite directions, sectoral pistons in the latter compartments and secured to the respective shafts and opening and closing said ports alternately, compression-chambers communicating directly with the respective explosion-compartments, a carbureter communicating with each of said chambers alternately, means supplying the carbureter with air and gasoline, reciprocating pistons in the chambers and operated by the aforesaid shafts, and compressing the mixture in said chambers and forcing the compressed mixture into the explosion-compartments, check-valves in said chambers and explosion compartments and opened by the suction and compression respectively of the mixture, means of automatically closing said valves, and exhaust-ports in the said case, substantially as described.

810,495. Gas-Engine. William G. Miller, West Medway, Mass. Filed Mar. 30, 1905. Serial No. 252,937.

Claim.—1. An engine comprising a casing, a piston reciprocally moveable therein and dividing the casing into compartments, one of said compartments forming the explosion chamber, an inlet-valve to the other compartment, said piston adapted to draw the working agent into the said other compartment during one portion of its stroke, said casing having piston-controlled exhaust-ports for the explosion chamber, means carried by the piston for passing the working agent into the explosion chamber from the other chamber, and means carried by the piston for closing the exhaust ports in advance of the admission of said working agent, substantially as shown and described.

810,509. Clutch-Operating Mechanism. Clifford L. Reed, Portland, Oreg. Filed May 26, 1905. Serial No. 262,474.

Claim.—1. In a clutch-operating mechanism,

a longitudinally-moveable member, a thrust-pin, inclined members opposed to the longitudinally-moveable members, wedging members moveable between the inclined members and the longitudinally-moveable member, and means for transmitting movement from the thrust-pin to said wedging members.

810,372. Steering-Knuckle for Vehicles. Jackson O. Haas, Pottsville, Pa. Original application filed Oct. 21, 1904. Serial No. 229,481. Divided and this application filed Feb. 16, 1905. Serial No. 245,936.

Claim.—1. An axle having an approximately cylindrical head, a steering-knuckle having a recess pivotally engaging said head, the lower wall of said recess constituting a flange eccentric with the pivot, and a hook-shaped member upon the axle engaging said flange.

810,379. Motor-Vehicle. Harry M. Pope, Chicopee Falls, Mass., assignor, by mesne assignments, to Morton Trust Company, trustee, a corporation of New York. Original application filed Oct. 23, 1899. Serial No. 734,420. Divided and this application filed Sept. 10, 1903. Serial No. 172,563.

Claim.—1. In a motor-vehicle, the combination with a motor, driving connections, driving-wheels and independent steering-wheels, of a two-part running-gear frame, one part of said frame supporting an axle is held from movement in a horizontal plane and which is provided with independent steering-wheels, the second part supporting the motor, driving connections and the driven wheels in fixed relation therewith, said second part being suspended at one point from the first-named part whereby the wheels may accommodate themselves to an uneven surface without distortion of the motor and driving connections, and a spring connection between the two reach members.

12,437. Frictional Retarding Means for Spring-Vehicles. Jules M. M. Truffault, Paris, France, assignor of fifty-one one-hundredths to Edward Vassallo Hartford and forty-nine one-hundredths to George H. Hartford, both of Orange, N. J. Filed June 9, 1905. Serial No. 264,523. Original No. 695,508, dated Mar. 18, 1902.

Claim.—1. In a vehicle, the combination with a supporting spring between the parts of the vehicle movable relatively to each other, of rotating frictional means between the parts which provides a yielding resistance to movement, said means producing a retarding effect on the reaction of the spring, substantially as described.

810,526. Wheel for Vehicles. Thomas Gare, New Brighton, England. Filed Jan. 15, 1904. Serial No. 189,173.

Claim.—1. In a vehicle-wheel, segmental sections with their sides fitting against each other tangent to the bore of the wheel, substantially as and for the purpose set forth.

810,528. Apparatus for Heating Tires. George W. Graves, Detroit, Mich., assignor to Daniel D. Frisbee, Detroit, Mich. Filed Dec. 19, 1904. Serial No. 237,474.

Claim.—1. In an apparatus of the character described, the combination with a casing formed by two detachable semicylindrical sections and having a combustion-chamber at its lower end, of tire-supports above and on opposite sides of said combustion-chamber, and means for imparting rotary motion to the tire upon said supports.

810,535. Explosion-Engine. Heinrich Heinrich. Spotswood, N. J., assignor of one-half to David D. A. Outcalt, Spotswood, N. J. Filed Apr. 20, 1904. Serial No. 204,120.

Claim.—1. In an explosion-engine, a piston having a peripheral groove forming a water-receptacle, a ported cylinder, a revoluble member having a water-passage in communication with the port, and means for rotating said member.

810,542. Exhaust-Muffler. William R. Kahlenberg, Two Rivers, Wis. Filed Sept. 9, 1905. Serial No. 277,775.

Claim.—1. A muffler consisting of a closed drum provided with heads at either end thereof, exhaust inlet or outlet openings in the heads, an inner jacket of less diameter than the drum in communication with the exhaust and inlet openings, peripheral openings in the jacket adjacent to its ends, and a valve fitted in said jacket between the peripheral openings.

810,565. Gas-Engine. Edwin F. Porter and Walter F. Whiting, Boston, Mass., assignors to American Rotary Engine Company, Boston, Mass., a corporation of Maine. Filed Nov. 24, 1900. Renewed Mar. 16, 1905. Serial No. 250,405.

Claim.—1. An engine comprising a piston and cylinder, a pair of crank-shafts mounted parallel with each other, a pair of connecting-rods extending from said piston to said shafts, a gear mounted on each shaft and intermeshing one with the other, and a fly-wheel keyed to one end of each crank-shaft and located on opposite sides of the engine.

810,636. Automobile. Leonard B. Gaylor, Newton Center, Mass. Filed Mar. 21, 1905. Serial No. 251,238.

Claim.—1. In an automobile the combination of a motor mounted upon a spring-supported frame over a fixed rear axle, a counter-shaft forward of the motor, sprocket-wheels on the counter-shaft, sprocket-chains proceeding from said sprocket-wheels direct to each driven wheel independently and means for transmitting the power of the motor to the counter-shaft at variable speeds.

810,643. Cooling Means for Explosive-Engine Cylinders. Simeon Ham, Indianapolis, Ind., assignor of one-half to August H. Timmerman, Indianapolis, Ind. Filed May 8, 1905. Serial No. 259,368.

Claim.—In a gas or explosive engine, the combination with the cylinder thereof and a series of integral-turned air-cooling ribs surrounding said cylinder, of a jacket or casing surrounding said cooling-ribs of said cylinder and having its top and bottom ends open, said jacket having an outwardly-flaring base-lip, an inwardly and downwardly curved deflecting-lip situated at the top of said jacket of casing whereby the column of outgoing air is deflected against the end cover of the cylinder, an annular air-jet tube, having a continuous annular slit or air-outlet jet-opening, situated beneath the bottom open end of said casing in relative position thereto so that the air under pressure escaping from said annular slit is directly applied to cool the cylinder, a pressure-blower connected directly to the crank-shaft of said engine and suitable means for connecting said blower to said annular jet-tube.

810,673. Vehicle-Steering Mechanism. Frank B. Rae, Chicago, Ill., assignor to The American Electromobile Company, East Orange, N. J., a corporation of New

Jersey. Filed June 4, 1898. Renewed July 26, 1905. Serial No. 271,390.

Claim.—1. A vehicle-steering mechanism comprising a vehicle-frame reach-rod, an axle mounted at its center upon said rod and having its ends free to move vertically but not horizontally, brace-rods connecting the ends of the axle with said reach-rod, a pair of wheel-shafts pivotally attached to the axle near the ends thereof, a pair of wheels mounted upon said wheel-shafts, wheel-levers integrally connected with said wheel-shafts, a differentiating lever having pivotal connection with said axle, connections between the outer ends of said wheel-levers and of said differentiating lever, a hand-lever mounted for movement in a vertical plane, an auxiliary lever mounted upon a vertical pivot, connections between said hand-lever and said auxiliary lever, and a floating rod connecting said auxiliary lever and said differentiating lever.

810,674. Vehicle-Motor Suspension Mechanism. Frank B. Rae, Detroit, Mich., assignor to The American Electromobile Company, East Orange, N. J., a corporation of New Jersey. Filed Sept. 7, 1905. Serial No. 277,470.

Claim.—1. A vehicle-motor-suspension mechanism comprising a driving-axle, a plurality of vehicle-supporting journal-boxes thereon, a tube connecting two adjacent boxes and inclosing said axle, and a motor having its axle end rotatably mounted upon said tube and its free end yieldingly supported from some other portion of the vehicle, substantially as described.

810,679. Steering Device for Vehicles. George J. Rudert, Wilmington, Del. Filed March 7, 1905. Serial No. 248,839.

Claim.—1. In a vehicle, the combination with the body portion thereof, of a pair of oppositely-disposed spindles each being pivotally connected to the body portion forwardly of a line passing through the axes of the spindles, supporting-wheels on the spindles, said spindles being adapted to be adjusted on their pivots to vary the angularity of the wheels to steer the vehicle, and means for automatically returning said spindles into alignment after the steering operation.

810,685. Power Gas Apparatus. Godfrey M. S. Tait, Montclair, N. J., assignor to Combustion Utilities Company, New York, N. Y., a corporation of New York. Filed Oct. 21, 1905. Serial No. 283,839.

Claim.—1. A combination of a suction-producer; an internal-explosion engine; a connecting-conduit; interposed in said conduit a fan-blower having a liquid-seal bypass, whereby gas may be delivered under a constant predetermined pressure to the engine, substantially as described.

810,697. Cap. Louis Balsam, New York, N. Y. Filed May 17, 1905. Serial No. 260,788.

Claim.—1. In a cap, the combination with the vizor, of an eye-protector of transparent material and a bellows connected between the front edge of said vizor and the front ends of said protector, whereby the protector is adapted to be pulled down from the rear, substantially as described.

810,722. Vehicle Attachment. Henry F. Cook, Sag Harbor, N. Y. Filed June 13, 1905. Serial No. 265,090.

Claim.—1. In a device of the character described, the combination of a vehicle-body, supporting-wheels therefor and auxiliary wheels normally sustaining no portion of the weight of the vehicle-body but cap-

able of sustaining it when one or more of the supporting-wheels leave the normal plane of the surrounding surface of the road-bed.

810,783. Friction-Clutch. Jonathan D. Maxwell, Detroit, Mich. Filed July 25, 1904. Serial No. 217,925.

Claim.—1. In a clutch, the combination with a driving and a driven shaft arranged in axial alignment with their ends abutting, a facing-disk having an axial sleeve secured to one end of the shaft and forming a socket to receive the end of the opposite shaft, a series of discous plates mounted on said sleeve at one side of said disk, a longitudinally-moveable facing-disk at the other side of said plates, a feather secured to the sleeve and engaging notches in the plates and moveable disk, a yoke secured to the shaft opposite that to which the sleeve is secured and having outwardly-extending arms provided with lateral ends extending longitudinally over said plates and disks, a second series of discous plates mounted on the sleeve between the first plates and disks and free to turn thereon and provided with notches in their peripheries to engage the ends of the yoke, flat springs secured to one face of each of the plates of the second series outside the peripheries of the first series and engaging the adjacent plate of the series at its end to force said plates apart, and means for moving the plates of one series into frictional contact with those of the other against the action of said springs.

810,792. Carbureter. James McIntosh, Lansing, Mich. Filed Oct. 15, 1904. Serial No. 228,563.

Claim.—1. A vaporizer having a liquid-fuel-supply nozzle with a valve set intermediate its ends, a throat surrounding said nozzle and adapted to have an air-current pass through it, said throat contracting toward the discharge end of the vaporizer, a valve coacting with the seat in and commanding the discharge nozzle, and a fluted or ribbed stem extending from the valve through the discharge portion of the seat, for the purpose specified.

810,881. Motor-Vehicle. Leroy S. Pfouts, Canton, Ohio. Filed Apr. 1, 1905. Serial No. 253,376.

Claim.—1. In a motor-vehicle, an axle provided with hollow bearing-shanks and wires located throughout, sleeves loosely mounted upon the shanks and provided with motor-supporting stubs and stub-axes, motors secured to the stubs, arms journaled concentrically with the sleeves upon the shanks, means for communicating rotary motion from the motors to the traveling wheels, and the motors, traveling wheels and means for communicating rotary motion to said traveling wheels having common pivotal points, substantially as and for the purpose specified.

810,888. Vehicle-Tire. Charles Stein, Akron, Ohio. Filed Sept. 29, 1904. Serial No. 226,463.

Claim.—1. A combined shoe and rim, for pneumatic tires, embodying a shoe formed with meeting margins, a seat or support for the inner periphery of the pneumatic tube, means for securing said shoe to the rim passing through the shoe at or near the meeting margins in combination with an embedded non-stretchable material, located in one of the margins.

810,921. Tire for Vehicle-Wheels. Abdenego Dewes, New York, N. Y. Filed July 20, 1905. Serial No. 270,471.

Claim.—1. A solid tire for vehicle-wheels, composed of a flexible material,

adapted to be seated on the periphery of a wheel-felly, and a retaining strip or core having a plurality of undercut recesses formed in each of its two side edges, embedded in the flexible material so as to be wholly within or above the base or seating portion of the flexible tire and adapted to receive the threaded portions of screws passed through the felly of the wheel.

810,929. Storage Battery. William Fennell and William P. Perry, Leytonstone, England. Filed Mar. 17, 1904. Serial No. 198,846.

Claim.—1. In an electric accumulator, a honeycombed mass, an active material on the exposed surfaces of the mass, and unobstructed passage-ways formed therein besides the interstices of the mass for the egress of gas.

810,930. Storage Battery. William Fennell and William P. Perry, Leytonstone, England. Filed Mar. 6, 1905. Serial No. 248,778.

Claim.—1. An electrode comprised of a non-conducting mass insoluble in electrolyte pierced in more than one direction with intercommunicating passages, the walls of the passages being lined with active material.

810,944. Elastic Tire. John E. Hopkinson, West Drayton, England. Filed Aug. 15, 1905. Serial No. 274,348.

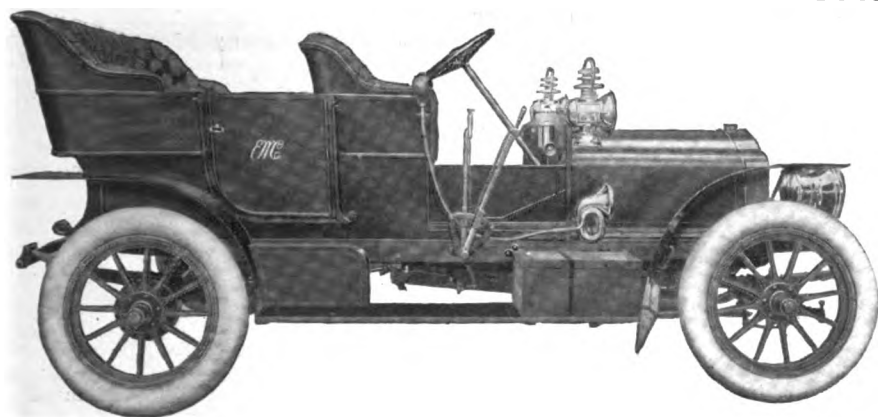
Claim.—1. In a tire, the combination with a concave rim and a rubber tire extending across said rim, of check-plates adapted to compress the rubber laterally, of re-entering flanges upon the check-plates and of serrations upon the inner faces of the flanges arranged to thrust the tire into the concave rim.

810,959. Oil System. Howard C. Marmon, Indianapolis, Ind., assignor to Nordyke & Marmon Company, Indianapolis, Ind., a corporation of Indiana. Filed Feb. 13, 1905. Serial No. 254,421.

Claim.—1. In an oiling system, the combination, with a bored rotating member; of a feeder for introducing oil thereinto comprising, a main hollow casing provided with, an annulus arranged to slip over the end of the rotating member, a drip-chamber within the annulus, an inlet-chamber within the casing, a spiral groove formed in the interior of the annulus and leading in the direction of rotation of the shaft inward toward the drip-chamber, a tube within the annulus communicating with the inlet-chamber and extending into the bore of the rotating member, there being a spiral groove on the periphery of the inlet-tube and leading toward the inner end thereof in the direction of rotation of the rotating member; and an overflow pipe leading from said first-mentioned chamber.

811,122. Sparking Igniter for Internal-Combustion Engines. Alfred R. Bellamy, Edgeley, Stockport, England. Filed Sept. 27, 1904. Serial No. 226,192.

Claim.—1. In combination a magneto-electric generator, a trip-lever mounted on the axis of the armature of the generator, a plunger connected to one end of such trip-lever, sparking mechanism connected to the other end of the plunger and means for oscillating the trip-lever in one direction consisting of a tappet carried by an eccentric-rod vibrated by an eccentric mounted on the side shaft of the engine the eccentric rod being connected to a link pivoted onto a bracket or fixed part of the frame of the engine and means for adjusting such link toward or from the eccentric-rod substantially as described.



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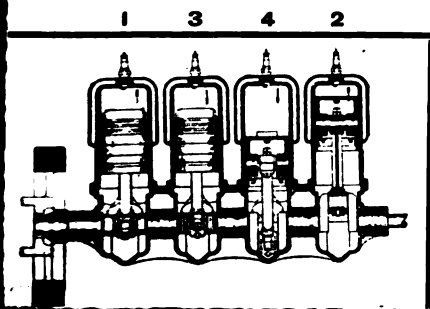
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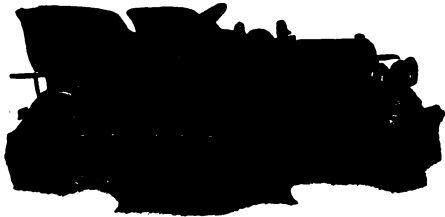
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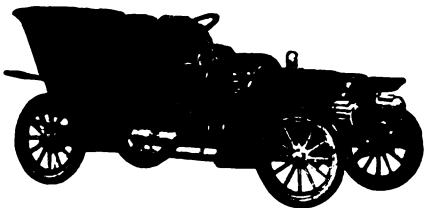
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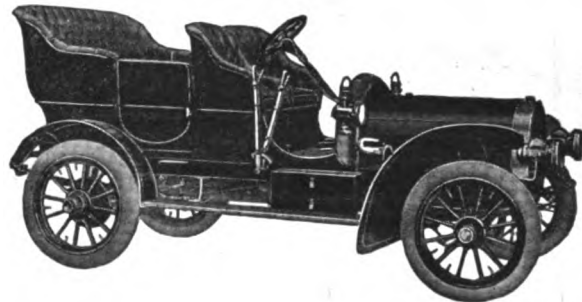
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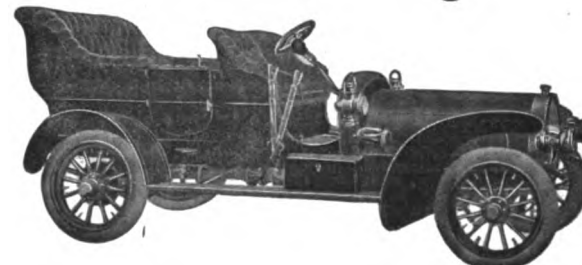


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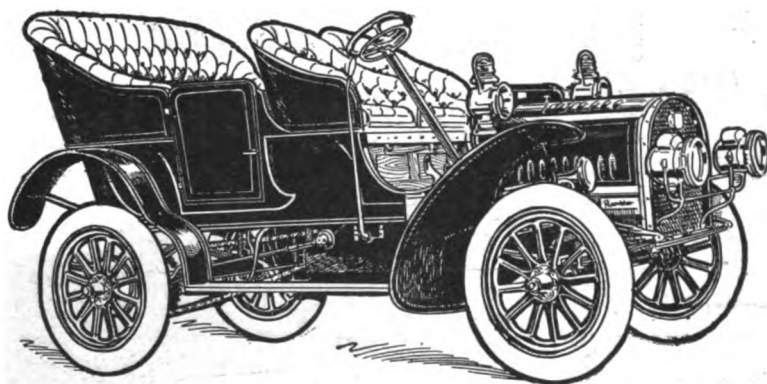
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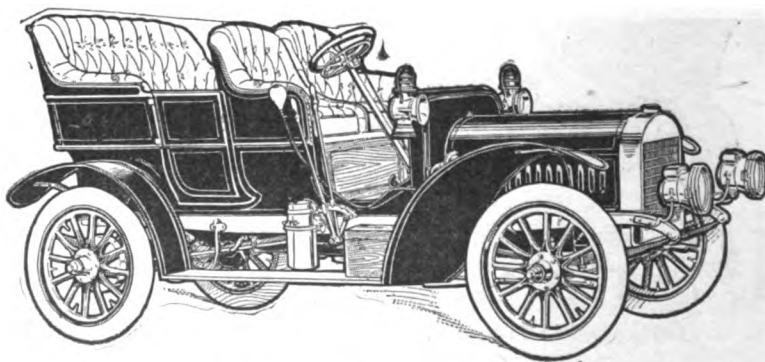
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This is equipped with a four-cylinder vertical motor, sliding gear transmission and shaft drive.

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Thos. B. Jeffery & Company.

THE MOTOR WORLD.

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE
AND KINDRED INTERESTS

Volume XII.

New York, U. S. A., Thursday, February 15, 1906.

No. 3

ANDREWS WANTS \$50,000

**Accuses the Motor and Accessory Makers
of "Trespass"—Summonses Served
on Directors at Chicago Show.**

Although his show is not due to open until September next, A. M. Andrews, the Chicagoan, who appears to be the head and front of the Manufacturers of Automobile Parts, Appliances and Accessories Exhibition, Inc., feels that already he has been damaged a trifling \$50,000 worth by the Motor and Accessory Manufacturers, Inc. Evidence of Andrews's feelings was thrust on several directors of the organization during their visit to the Chicago Show last week. It took the form of a summons to appear in the Cook County court on the first Monday in April to show cause why they should not be mulcted \$50,000 for "trespass."

The name of the complainants or the nature of the trespass was not given, but it was generally understood that Andrews was the man behind the summons. Andrews was, of course, among those in attendance at the Coliseum Show and, it is alleged, gleefully let fall the intimation that there would be "something doing before the show closed." It was known that he was much aggrieved by the resolution of the Motor and Accessory Manufacturers, adopted last month, which recited that any member exhibiting at any show not sanctioned by the directors, may be debarred from exhibiting at sanctioned shows. The Chicago proceedings make it appear that Andrews's M. o. A. P. A. a. A. E. did not receive a sanction, as they also make it appear that the promoters were counting on a fat profit.

Later Promoter Andrews confirmed the general impression that he had instigated the action. In a letter pleading with the press "not to take sides in the matter," he says that "our exhibitors represent an aggregate capital of over \$200,000,000 and the suit alleging trespass and conspiracy is brought for their protection." Of course,

he does not give the names of the exhibitors.

The summons was directed to the following:

Motor and Accessory Manufacturers' Association (a corporation, etc.); David Post, Veeder Mfg. Co., (a corporation, etc.); Howard E. Raymond, B. F. Goodrich Co., (a corporation, etc.); H. S. White, Shelby Steel Tube Co., (a corporation, etc.); J. W. Gilson, Hartford Rubber Works Co., (a corporation, etc.); Clarence E. Whitney, Whitney Mfg. Co., (a corporation, etc.); P. S. Steenstrup, Hyatt Roller Bearing Co., (a corporation, etc.) Service was made on all of those named save Mr. White. None of them, however, appeared to be unduly worried.

Dealers' Association to Open Offices.

Following up its recent decision to throw open its doors to all dealers and thereby to become national in fact as well as in name, the National Association of Automobile Dealers is preparing to "gather 'em in" and "do things" in real earnest. To that end the office of business manager has been created and W. R. Densmore, formerly with the Packard Motor Car Co., has been engaged to fill the position. Offices will be established in the Prudential building in Buffalo, of which Mr. Densmore, of course, will have charge.

Electric Vehicle Makers Elect Officers.

The organization of the Electric Vehicle Manufacturers' Association was completed at a meeting in Chicago on Friday last, 9th inst. The following were then chosen as the officers: President, George Pope, Pope Mfg. Co., Hartford, Conn.; vice-president, George N. Studebaker, Studebaker Automobile Co., South Bend, Ind.; treasurer, M. L. Goss, Baker Motor Vehicle Co., Cleveland, Ohio; secretary, Robert McA. Lloyd, Vehicle Equipment Co., New York.

John to Sell the Moon.

George John, formerly connected with the International A & V Tire Co., has been appointed sales manager of the Moon Motor Car Co., of St. Louis. The negotiations were closed during the Chicago show.

FOR AN OUTDOOR SHOW

**Independent Manufacturers take Unexpected Action—Road Race also in View—
Detroit May be Chosen.**

Detroit, Mich., Feb. 13.—It looks as if this city will be selected for the outdoor national show. James Couzens, Benj. Briscoe and R. B. McMullen, constituting the committee from the American Motor Car Manufacturers' Association, met the local Chamber of Commerce this morning and went deep into the matter. An attempt is being made to secure the Fair Grounds for the show. It is of ample size and well located.

Chicago, Feb. 10.—There will be an outdoor show—a National one—held in this country this fall. The American Motor Car Manufacturers' Association will be its sponser and in all probability it will not occur in either New York or Chicago. How it will affect the national indoor shows heretofore held in January of each year has not been made plain nor will the officials of the association commit themselves on that point, but reading between the lines leads straight to the conclusion that the organization will not again have to do with the indoor show; the movement for the outdoor exhibition therefore appears to mark a breaking away from old standards and a radical upheaval of the show situation.

The new order of things was inaugurated at the annual meeting of the American Motor Car Manufacturers' Association, held here yesterday in the New Southern Hotel. At this meeting the Committee of Management, as the official board is styled, was increased from five to nine members, the new committeemen being Walter Marmon, of the Nordyke & Marmon Co.; Charles Lewis, of the Jackson Automobile Co.; Charles E. Duryea, of the Duryea Motor Co., and W. H. Vandervoort, of the Moline Automobile Co. The officers were then re-elected, as follows: Chairman, James Couzens, Ford Motor Co.; vice-

chairman, A. C. Newby, National Motor Vehicle Co.; treasurer, J. B. Bartholemew, The Bartholemew Co.; secretary, Wm. Mitchell Lewis, Mitchell Motor Car Co.; auditor, Benjamin Briscoe, Maxwell-Briscoe Motor Co.

The election to membership of the Crawford Automobile Co. and the Dorris Motor Car Co. was ratified, after which the motion to instruct the general manager of the association to proceed with the promotion of an out-door show, open to all, to be held in September or October next, was passed by the unanimous vote of the 18 members present. The motion was succeeded by the reading of a telegram from a city, which evidently had prior knowledge of what was to occur, offering a bonus of \$15,000 if the show is held "in its midst." Other tenders from other cities have, it is stated, also since came to hand.

In conjunction with the out-door show it is proposed to have a road race of about 250 miles for American-built cars only and the securing of the necessary permission to hold such a race will naturally have weight in selecting the location for the show. The Middle West is generally favored, Detroit being generally thought of as the most advantageous point, though whether the roads adjacent to it are good enough to hold such a race on is somewhat of a question. The association itself will conduct the show.

Having in mind that since the automobile show held in the 69th Regiment Armory in New York, opposition to using those State buildings for such industrial purposes has been aroused so that their use for future exhibitions of the sort is extremely doubtful, General Manager McMullen was asked if the holding of the out-door show foreshadowed the withdrawal of the association from the National indoor shows. He stated, however, that nothing had been said to define the attitude of the members on this point, but that they opposed the present season for holding an indoor show on the ground that it interrupted and delayed manufacturing at a time of the year when it could be least afforded, and that the holding of an out-door show in the early fall meant a longer manufacturing season and was decidedly for the benefit of the entire automobile industry—a statement that makes reasonably clear that the organization will not again have to do with the indoor shows unless they are held early in the fall instead of in January as heretofore.

One-Half for De Dietrich Creditors.

Judge Holt, of the United States District Court, has confirmed a composition of the De Dietrich American Branch, New York, with its creditors at 50 cents on the dollar cash, to pay which there was deposited \$35,395 cash in a trust company. The schedules showed liabilities of \$140,974 but the claims filed did not amount to so much; the assets were \$46,294.

In the Retail World.

The Hasbrouck Motor Works, of New London, Conn., has taken the agency in that city for the Rambler cars.

Charles W. Smith, of Bloomfield, N. J., has "opened up" in that town. He will represent the Pope-Toledo, Pope-Hartford and Pope-Tribune.

The Hamilton Automobile Co., of Philadelphia, has taken on the Queen. It also represents the Corbin and Stoddard-Dayton in the Quaker City.

J. J. Mahoney is having a garage built adjoining the Quaker City Hotel, at Ohio and Atlantic avenues, Atlantic City, N. J. It will be run in conjunction with the hotel.

Frank C. Blomberg & Co. are making ready to open a new fire-proof garage at 346 to 352 Madison street, Memphis, Tenn. The firm will carry an extensive line, including the White, Thomas, Buick and Baker.

Perkins & Corliss, the Gloucester, Mass., dealers, will build a new garage on the lot on School street, that town, which they recently acquired. The building will be two stories high, 45x100 feet, and will be ready for occupancy April 1.

The Commercial Automobile Storage & Supply Co., Washington, D. C., recently incorporated, will handle the Wayne in the District of Columbia and the State of Maryland. It is located at 1715 Thirteenth street, N. W.

John Carpenter & Sons, who conduct the Bridgeport (Conn.) Automobile Co. garage, at 251 Cannon street, have bought a lot on Fairfield avenue, 50x100 feet, and will build thereon a garage. It will be one-story high, of concrete construction and fire-proof, as a matter of course.

J. P. Beck & Co., carriage manufacturers of Saginaw, Mich., have observed the trend of affairs and decided to enter the automobile business. The firm has just contracted for the erection of an automobile and carriage repository, 90x60 feet. It will be erected in the 800 block in Genessee avenue and will be completed by July 1.

W. W. Sears and O. R. Nattinger have formed a partnership to engage in the automobile business and have leased the building at 812 and 814 Walnut street, Des Moines, Iowa, where they will establish a commodious garage and salesrooms. The Reo and Ford cars will be represented. Neither Sears nor Nattinger are new to the business, the former having been with the Olds Company and the latter with the Riddell Automobile Co., of Des Moines.

That the Babcock Electric Carriage Co., of Buffalo, acquired a "live wire" when it secured as sales manager C. A. Benjamin, was again proved last week when he landed Orlando F. Weber Co. as Chicago agents, securing a substantial order to bind the bargain. Incidentally, Benjamin is to be

elected secretary of the Babcock Company at the next meeting of the directors.

The Orlando F. Weber Co. has disposed of its Milwaukee store to the recently organized Welch-Estberg Co., which will continue to handle the Pope lines in Milwaukee and vicinity. Welch in the case of the new company stands for the two sons of the president of the White Rock Mineral Water Co., who has taken this opportunity of starting them in the automobile business.

The Ohio Oldsmobile Co., of Cleveland, has reorganized and reincorporated as the Auto Shop Co., with \$50,000 capital. The company will remodel the building at 731 Vincent avenue, where they will handle the Olds, Franklin and Thomas lines. At the meeting last week, when organization was perfected, these officers were elected: President, E. F. Voris; vice-president, Rollin W. Lusk; secretary, J. B. Sperry; treasurer, W. C. Schroeder; manager, W. R. Owen; directors, the officers, Milton W. Lusk, Edward M. Springsteen, Carl F. Schroeder, W. H. Hart, Otto Starek and L. H. Uhl.

Strike on at Napier Works.

One hundred and twenty of the mechanics employed at the Jamaica Plains, Mass., factory of the Napier Motor Co., went out on strike last Saturday afternoon. The trouble has been brewing for some time. The plant is in charge of a superintendent sent over from the English factory and he has been introducing methods which are not agreeable to the American mechanics. The climax came last week when he asked the men to sign an employer's contract whereby they would be held financially responsible for spoiled work and for tools. This, the superintendent explained, was the rule in English factories. The arrangement, however, did not suit the machinists' ideas of American independence, and after conferring with the International Association of Machinists, they decided to strike.

Baker in New Factory.

The Baker Motor Vehicle Company, of Cleveland, have finally taken possession of their new factory at Edgewater Park and L. S. & M. S. Railway, the change making their capacity many times greater than heretofore. The new plant consists of a large main building, three stories in height, which contains the offices, drafting and shipping rooms, stock rooms, etc. The factory proper is a one-story building covering several acres of ground.

Miller to Move Further up.

On March 10, Charles E. Miller, the well known supplyman will remove his uptown retail branch from its present location on West 38th street, New York, to 924 Eighth avenue, between 54th and 55th streets. The new place, which will be around the corner from the new clubhouse of the Automobile Club of America, will do both a wholesale and retail business.

NO GASOLENE FOR SIXTY

New York Fire Authorities Take Action Against Garages—How they Offend.

One of the most sensational developments that has ever been sprung upon the New York trade, takes the form of a refusal to renew the permits of more than fifty garage keepers to store gasoline on their premises, which was made public by Superintendent Murray of the Bureau of Combustibles, late last week. Since then curiosity has been rife as to just who the unfortunates are as well as what further action the department may take in the near future.

"Under no consideration whatever could we give you the names of the garage keepers whose licenses we have refused to renew," said Mr. Murray, when appealed to by a Motor World man for information concerning the delinquents. "This is not a sudden flare up that will subside and leave things in much the same old position," he went on. "From 200 five years ago, the number of automobiles in the city has grown to many thousands and so vast a growth in such a short time has given rise to innumerable small places run by individuals with little or no capital, and who pay little or no attention to the regulations. For the past year and a half we have been patting these little fellows on the back, asking them kindly to obey the law, but without any visible result and the present method of procedure is the outcome.

"What is that method? Why, we have refused to renew the license to store gasoline on the premises and within the next thirty days we will collect evidence as to the places that are violating the law by not having a license. Warrants will be issued for the arrest of the proprietors of all such places and they will be prosecuted under Section 789 of the Penal Code, which makes the offense a misdemeanor.

"No, they are not all small fry by any means, although the great majority consist of storage and hiring places. Still, if we made their names public, it would lay us open to a charge of destroying their business. One of them is the garage of the largest manufacturer in the country. Yes, the very biggest maker of vehicles in the United States," he said after a moment's reflection, "and if we gave his name for publication we'd never hear the end of it. Of course, there are dozens of them who have threatened to pull all sorts of strings and wires, when we refused to renew their licenses, but compliance with the regulations will be their only way for making peace."

"In brief, you have simply decided not to

renew the licenses of the forty to fifty places unless immediate compliance with the regulations is forthcoming?" was suggested.

"That's it, but the number now is some sixty odd, and before we get through it will be something over two hundred," responded Mr. Murray. "We have had to wait until the present to take action because the revocation of a license in force would have raised a question as to the disturbance of vested rights, contained in such an action, depriving a man of his property without compensation or due process of law, so that rather than have any such complication we have revoked no licenses, but simply awaited the expiration of the licenses and then refused to renew them. Our reason for doing so in the case of such a number just now is due to the fact that in a few months, winter having given way to summer, most of them could conform through not having any further use for a fire for heating purposes. In most instances the violation consists of the presence of a fire in the same building with gasoline, although some have not complied with the regulation concerning the burying of the gasoline tank.

"Then some of the violations are so flagrant and constitute such a menace that we have warned the proprietors that we would hold them personally responsible in case of loss of life resulting through a fire in their places. As an instance, one such establishment on 59th street backs on a theatre. There is a garage on the first floor, and above there is a meeting room where fully three hundred people congregate every night. If that place ever takes fire it will be impossible to get those people out alive for there is nothing but a thin wooden partition separating the garage from the hallway. We have notified the owners that they will be indicted for manslaughter in case of such an occurrence.

"Probably a third or more of the offenders cannot make their present places conform to the law," he continued in response to a question as to how many would be put out of business by the enforcement of the regulation. "But just look here," illustrating with a diagram on the back of a card, "most of these places have either a furnace or a low-pressure boiler in the rear of the cellar. All we ask them to do is to move it to the front as near the sidewalk as possible, enclose it entirely with a brick or other fire-proof wall and provide an entrance direct from the street. Of course, there are hardly any of the new garages that do not come within the letter of the law in every particular; it is principally the makeshift building that is under the ban and as many of them cannot be made to conform, their proprietors must stop handling gasoline. We will not depend entirely upon our own resources for procuring evidence as we can obtain access to the reports of such concerns as the Standard Oil Co. to show just who is buying gasoline in this city."

The Week's Incorporations.

Boston, Mass.—Comfort Auto Sight Seeing Co., under Massachusetts laws, with \$40,000 capital. Corporators—F. C. Russell and R. Higgins.

York, Pa.—York Motor Co., under Pennsylvania laws, with \$100,000 capital; to manufacture automobiles. Corporators—James A. Kline, et als.

Sanford, Maine.—York County Garage, under Maine laws, with \$10,000 capital; to conduct garage. Corporators—Charles S. Holmes and Fred J. Allen.

Everett, Mass.—Bay State Auto Co., under Massachusetts laws, with \$10,000 capital; to deal in automobiles. Corporators—Julius Boly and F. C. Boly.

Buffalo, N. Y.—Ducro Mfg. Co., under New York laws; to manufacture gasoline motors. Corporators—Louis C. Ducro, Charles Jempson and Emma S. Ducro.

Chicago, Ill.—Stoddard-Dayton Automobile Co., under Illinois laws, with \$5,000 capital; to deal in automobiles. Corporators—W. E. Harvey, H. L. Babcock and A. S. Joslin.

New York City, N. Y.—The Downtown Garage and Automobile Repair Co., under New York laws, with \$5,000 capital. Corporators—E. R. Geddes, F. M. Raynor and A. Collins.

Chicago, Ill.—Excelsior Auto Supply Co., under Illinois laws, with \$10,000 capital; to make supplies. Corporators—H. Musgrave, James B. Gascoigne and John A. McKeever.

New York City, N. Y.—George J. Scott Motor Co., under New York laws, with \$25,000 capital. Corporators—George J. Scott, Madeline Scott, Jacob Michaels and Mayme Michaels.

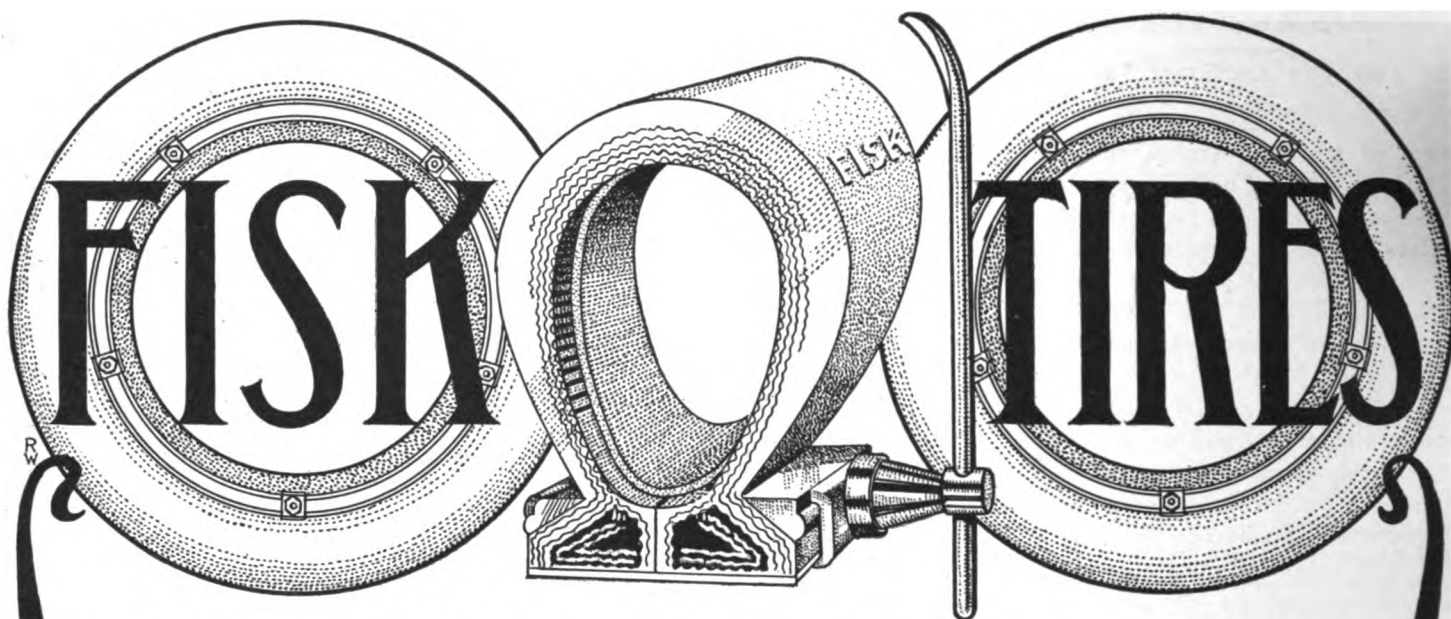
New York City, N. Y.—Motor Top Co., under New York laws, with \$5,000 capital; to manufacture automobile tops. Corporators—Syna W. Matthewson, Louis C. Howard and Harry A. Trimm.

Los Angeles, Cal.—Woodill Auto Co., of the County of Los Angeles, under California laws, with \$25,000 capital, \$50 paid in. Corporators—Gilbert Woodill, A. G. Woodill, H. B. Woodill, Arthur Wright and A. L. Woodill.

Baldwinsville, N. Y.—American Gasoline Motor Co., under New York laws, with \$20,000 capital; to make gasoline motors. Corporators—Julius D. Sweet, Howard Hendrickson, James A. Carhart and William B. Harris.

Jersey City, N. J.—The American Electrical Novelty Co., of the Pacific Coast, under New Jersey laws, with \$30,000 capital; to make all kinds of electrical appliances. Corporators—H. O. Coughlan, John R. Turner and B. Stafford Mantz.

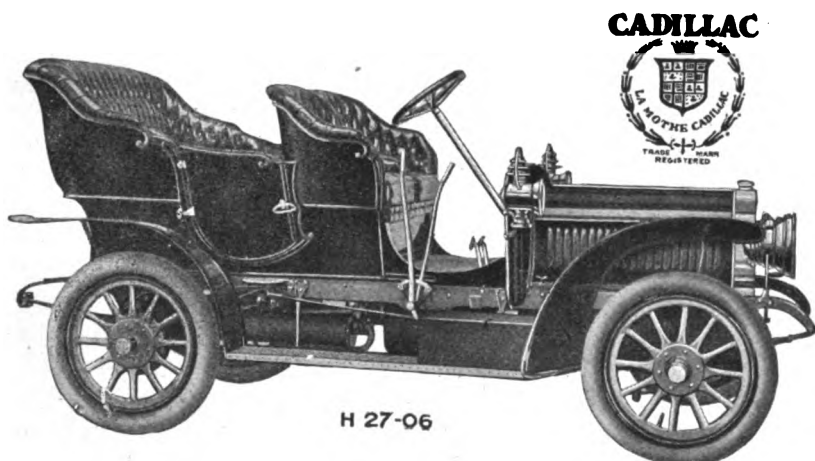
Cleveland, Ohio.—Auto Shop Co., under Ohio laws, with \$50,000 capital; to deal in automobiles. Corporators—E. F. Voris, Rollin W. Lusk, J. B. Sperry, W. Schrieder, R. R. Owen, Milton W. Lusk, Edward M. Springsteen, Carl F. Schroeder, W. H. Hart, Otto Starek and L. W. Uhl.



- ¶ Have withstood all competition as the Safest, Most Reliable, Long Wearing Tires made.
- ¶ They combine all the best features of other makes with many marked special virtues of their own.
- ¶ Their absolutely safe rim attachment is undisputably a veritable accident insurance. And they have a Quality peculiar to themselves, given by combining only the best materials with peculiar care in each one—as if our very reputation depended upon the service it rendered.

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MODEL H

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MODEL H SPECIFICATIONS.

Passenger capacity	-	-	-	Five persons.	Wheels and Tires	32 x 4 inches	Horse Power	30
Wheel base	-	-	-	100 inches.	Motor—Four cylinder	4 3-8 x 5 inches.	Weight	2400 lbs.

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DRIVE—Direct shaft with specially ground and hardened gears.

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STEERING GEAR—Our own new design, positive and reliable in its action.

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NEW YORK FEBRUARY 15, 1906.

Why not "Opening Days"?

Of course, it is not possible for every city to have its local show, but few towns are so poor in automobile establishments and in automobile interests, but that they may have an "opening day."

The "opening day" idea is not a new one. It has served to advantage in many older industries. There is no reason why it cannot be made to serve as well in this newer trade. If the National Association of Automobile Dealers is in want of something to do, it can do nothing worse than exploit this idea. But while organization may serve to effect its spread, an organization is not really necessary to turn it to advantage. All that is required is a tacit understanding or a concert of action on the part of the dealers in any town, indeed, one real live man who knows how to make the most of it, can almost force his fellows into line. A little housecleaning or decoration and a little publicity is about all that is required.

"Opening days" stimulate inspection and inquiry and inquiry and inspection stimulate sales. Washington's Birthday is a

good day for "openings," but any other day will do almost as well.

Alcohol and Commercial Vehicles.

Allied automobile interests have always shown themselves capable, not alone of defending their own interests when attacked, but likewise of working for their own benefit, and seldom has a better opportunity appeared to do the latter than in the proposed legislation to exempt industrial alcohol from taxation now before Congress. True, the manner of its application may be indirect, but it is none the less a benefit and one that interests every owner of a gasoline driven vehicle, present or prospective.

It is probably due to the fact that free alcohol is only associated in the minds of the majority of motorists with its use directly as a fuel for the motor, that they can conceive of no advantage to be derived from the passage of the legislation in question. No fault is to be found with gasoline and statements as to its threatened scarcity are regarded more as emanating from sources contaminated by an utterly ulterior interest than otherwise.

It is generally conceded that the time is not far distant when the building of vehicles for commercial purposes will form the backbone of the industry. But where will the greater economy of the motor wagon come in, if its fuel is to steadily advance in price? The automobile movement is not responsible for the increased demand and consequent advance in cost of gasoline, to anything like the extent popularly imagined. It is a small factor when compared with the 800,000 gasoline stoves and as many more small stationary engines that consume it every day in the year and almost every hour of the twenty-four. And this is a demand that is increasing with the same rapidity as that for automobile use; west of the Mississippi there are millions of people who know no other fuel. There is nothing to equal gasoline as a source of heat, light and power for a very respectable portion of the population of the country and that portion is certainly not diminishing in numbers.

Relieve the not over generous supply of the constantly increasing pressure of this demand and it will be some years before the motorist will have to bother himself, either about the relative superiority of alcohol as a fuel for the automobile motor, or the upward trend of the price of gasoline. The only way to do it is to provide means for supplying something equally efficient at the same price and this is only

to be found in tax free alcohol, the basis of which is produced by the very people who now use so many millions of gallons of gasoline annually for stoves and power. The measure now before Congress calls for the support of every motorist, not alone as such, but as a citizen as well, for it is of vital importance to the industrial prosperity of the country.

No Stagnation of Design.

Hindsight seldom fails to discover many things that were not included in the philosophy of those who depended solely upon their powers of prognostication, but a review of the developments brought forth by the shadows which within a fortnight of one another annually reveal all that the makers have chosen to keep covered until that time, tallies so closely with what was predicted that the retrospect does not differ materially from the majority of show forecasts. It was fully anticipated that the trend of design would be indicative of standardization so far as this could possibly be followed without sacrificing originality wholly, and events materialized the expectation.

There were, nevertheless, a sufficient number of exceptions from the general rule to still the fears of those who regard anything approaching a set standard as but the means of impressing the mark of unvarying sameness upon all. It may be urged by these opponents that the present bordering upon homogeneity by such a number of builders is but the result of the influence of the parts maker on one hand, and of the entrance into the manufacturing field of makers with neither the capacity nor desire to experiment, on the other. The development of original ideas and their final materialization in metal as perfected devices, constitutes a burden of expense such as only the best equipped makers can bear. It is accordingly not to be wondered at that a large number of new builders either depend upon the specialist for many of the necessary components of their cars, or adopt proven standards when undertaking the manufacture themselves.

To a certain extent this is true, but viewed from another light, it is likewise equally true of practically every builder in the country for few if any, would find it profitable to install the extensive facilities required to turn out the car from the ground up. The difference is, in consequence, one of degree rather than of kind, for where one maker relies upon his own plant to produce everything but the tires, and still an-

other everything but the body and tires, or these and the wheels and so on up, the shading being almost perceptible until the "assembled" stage is reached.

To the initiated eye, the components of a car are but the pages of an open book. Recognition instantly greets the familiar lines of the stock part and at a glance can tell its origin, even where as in some instances attempts have been made to deceive the discerning. In the light of this knowledge, a review of the shows may be said to have disclosed somewhat more than was anticipated in the way of novelty, though as predicted, it was with but few exceptions only to be found after diligent search for detail. Of the latter more were in evidence than were to have been anticipated after the settling effects of a twelve-month of standardization, but they are practically all of a nature the adoption of which means retention from the outset rather than experiment. Of the instances that may be termed experimental systems, in that they embody original ideas almost wholly, it is too early to speak. They have but entered upon their careers by appearing at the shows, and the result of daily service may be so totally different from the hopes of their creators that it would be unprofitable, to say the least, to attempt to predict their future. Their presence on the stage a year hence will speak volumes.

Offsetting the Cylinders.

History repeats itself in this no less in other fields, except that for obvious reasons the cycle of events which brings recurrence to light, has been comparatively of short duration. This anent the alleged discovery of certain features of design that have recently been adopted abroad by one or two makers, and which despite the fact that they were discarded several years previous by others, are being hailed as both original and exclusive.

As an instance of this, may be cited the practise of offsetting the cylinders on the crankcase in order to lessen the amount of side thrust against the cylinder wall. Theoretically at least, this constitutes an advantage the importance of which should make its general adoption imperative, but like so many other cases, this is but an example of the ever-open gap between theory and practice. Following the former, one of America's foremost investigators, Charles E. Duryea, embodied this feature in his engine years ago, and there is still remains to-day; theoretically as valuable as

ever, but of so little actual bearing upon current practice that few other designers have considered it a profitable expedient.

After a lapse of several years during which probably not more than one or two American makers regarded the innovation favorably enough to adopt it, only to discard it again after a short time, Continental designers have rediscovered it and are now exploiting their find as another example of the advanced design typical of the foreign motor. One French maker took it up two or three years ago and has since consistently adhered to the principle; in the interim two or three others have fallen into line so that it now bids fair to enjoy what the Gaul is fond of terming a "vogue."

As already stated, it is a principle that works out well in theory. According to the latter, the thrust of the connecting rod against the cylinder wall on the power stroke is excessive and should result after a certain period of running in wearing the cylinder more on that side than on the other which receives only the thrust of the idle portion of the stroke. Theoretically this should cause the cylinder to become oval, and particularly in the case of the horizontal engine, but that such has been the case in actual practice to anything like the extent feared would hardly appear to be borne out by current design. A further advantage claimed for this feature is the much better utilization of the power developed during the explosion by expending the full force of the latter in such a manner that it is converted into a turning movement at the crank with the minimum amount of loss due to the angularity of the connecting rod in relation to the piston and wrist pin. And in this probably theory and practise approach more closely than in the former instance, though even here experience does not seem to have shown the extra initial cost to be justified.

Its chief exponent in this country who is considered an authority on gas engine design, has clung to the principle continuously and consistently, and doubtless will do so to the end of the chapter. Whether in the course of another decade, refinement of design will have reached a point where expedients of even smaller relative value will find general appreciation through necessity for improvement at any cost, is rather difficult to foretell. But be this as it may, the fact that foreign designers should have resurrected a feature long since tried and found wanting in this country, and now be claiming originality and exclusiveness for it, forms a striking commentary

COMING EVENTS.

February 12-17—Detroit Automobile Show, under the auspices of the Tri-State Automobile and Sporting Goods Association.

February 19-24—Cleveland Automobile Show, under the auspices of the Cleveland Automobile Dealers' Association.

February 24-March 3—Philadelphia Automobile Show, under auspices of the Philadelphia Automobile Trade Association.

March 5-10—Buffalo Fourth Annual Automobile Show, under auspices of the Buffalo Automobile Trade Association.

March 10-17—Boston Automobile Show, under auspices of the Boston Automobile Dealers' Association.

April 2-7—Toronto, Ont., Automobile Show.

on the much vaunted superiority of the foreign production.

English Ideas of Tallness.

In all the world there is nothing more amusing than the efforts of the top lofty British paragrapher who attempts to belittle American enterprise and American achievements by means of his own little store of mistaken information. Thus that paragon of journalistic dignity, the "Car," in reference to a set of figures which are months old, the commentator evidently forgetting that the total area of the little kingdom which gave him birth is scarcely greater than that of the single State which is credited with over double the number of miles which he attributes to the entire Union:

"According to an American estimate there are now over 90,000 automobiles in the United States, which thus leads the world in this respect," he says. "It is asserted that in New York City there are 14,000 cars, whilst in the State of that name there are no less than 23,000. The number of automobile factories now in America is reputed to be over 100, and their output last year to have been 26,000 cars. Tall figures, these, which hardly seem correct to European eyes, especially when we consider that the total length of ordinary roads in America is computed at about 3,000 miles. There must be considerable overcrowding."

Someone who has been advocating the use of speed indicators on all motor cars has conceived the brilliant idea of automatically suggesting to the would-be evildoer the extent of the law's revenge by labeling the various forbidden rates of speed successively, "fine, imprisonment, manslaughter and murder."

NEW LAW FOR NEW YORK

West Enders "Get Busy"—State Commission, Good Jobs and Revocation Provided for.

After all, an effort is being made to tinker the New York automobile law. A revised bill was introduced into the Assembly on Monday by Representative Stanley of Manhattan, and into the Senate by Senator Saxe, also of Manhattan. It is fairly well known that the Automobile Club of America had drafted a measure for introduction, but it was generally understood that the club officials had been prevailed on to let well enough alone and to hold its measure in check. Meanwhile the super-active West End Improvement Association dipped its fingers into the matter and let it be known that it proposed "doing things." The A. C. A. then submitted its measure, but it was not satisfactory as a whole to the West Enders and their counsel, John C. Coleman, proceeded to inject into it the West End ideas. Some of those in the A. C. A. readily accepted them, others as bitterly opposed them, but the latter were over-ruled and the bill, as stated, was introduced into the legislature at Albany on Monday.

It is to be known as the "Motor Vehicle Law" and in substance it provides for the appointment of a State Motor Vehicle Commission, in which plenary powers for the regulation of automobiles within the State are to reside, all other legislation to that effect being repealed. While the commissioners are to receive no compensation other than traveling and necessary expenses the bill provides one or two good jobs such as counsel to the commission at \$4,000, and a secretary at \$3,000. Minor clerical assistants and examiners are also provided for. A limit of \$8,000 yearly is the aggregate set upon the latter, but they are not otherwise fixed.

The commission's headquarters are to be in Buffalo and New York, meetings once a month at Albany being obligatory throughout the year. On such occasions two of the commissioners are to constitute a quorum, though all examinations and investigations undertaken by any one of the commissioners are to be deemed the proceedings and decisions of the commission itself when affirmed.

Complete powers over the licensing and operation of automobiles is invested in the commission, the prerogative of which is not to be infringed upon by any local authority. Licenses for cars are to be much the same as at present, but two identification numbers are to be carried on front and rear of the car instead of in the latter position alone. The requirements of registration are practically those now in force, except that the owner of a car already registered must turn in his credentials and will receive a certificate and seal under the new law upon payment of \$2, whereas a previously

unregistered owner pays a "filing fee" of \$3 for this formality. The seal is to be of metal not less than two inches in diameter on which is to be stamped "Registered Motor Vehicle Number —, New York Motor Vehicle Law" and is to be conspicuously affixed to the car. Upon the sale of a car by anyone other than a maker or dealer its credentials must be returned to the commission within ten days.

Makers or dealers are merely required to register one car of each type handled, and as many duplicate members and seals as may be required will be supplied at an additional fee of fifty cents each. It further provides for exemption of non-resident owners and prohibits the operation of unregistered vehicles as well as the use of fictitious numbers.

A speed limit of one mile in three minutes is set, except when approaching bridges, curves, descents or the like and when traversing them. Local authorities are however given the power to pass ordinances on this point, particularly for parks, drives and the like, power being reserved to exclude automobiles from horse speedways, but such local speed limits must not be less than that of one mile in six minutes on the streets of any incorporated village or town and that the same limit be applied to all other vehicles, and the penalties for violations must also be the same in every case, and where such ordinances are passed, the familiar warning signs must be erected. Local authorities may also grant permission for speed races.

The provisions as to stopping on signal, meeting horses, brakes and lamps required and the definitions of the various terms such as that "motor vehicles shall include all vehicles propelled by any power other than muscular," and excepting motorcycles, are substantially the same, if not identical with those in the existing law.

In addition to the formalities now prescribed for the registration of chauffeurs, an age limit of 18 years is set and the latter must under the new law demonstrate their fitness for the position to the commission, upon which a license badge similar to that now in vogue will be issued. Like owners previously registered, chauffeurs in the same position will have to hand in their credentials and in this case pay \$3 for the new ones, whereas the newly registered chauffeur is taxed \$5 as a "filing fee." The same prohibitions as to the use of fictitious badges and driving by unregistered chauffeurs obtain as in the case of owners.

Violations of the speed limit are made misdemeanors punishable by a fine of not more than \$100 for the first offense and of not less than \$50 nor more than \$100 or imprisonment for 30 days for the second offense, this being raised to not less than \$100 or more than \$250 with the same imprisonment upon third and subsequent offense. Fines for other violations range from \$25 to \$100 with ten days imprisonment as the maxim.

Records are to be kept by all courts and

trial justices and forwarded to the commission and such trial courts and justices may make recommendations concerning the revocation or suspension of licenses. The latter power, however, vests in the commission which may revoke or suspend the license of either owner or chauffeur upon notice and hearing. Licenses are to be endorsed upon conviction and when suspended or revoked, a penalty of \$100 and 10 days' imprisonment is provided for operating a car thereafter.

In case of arrest every owner is entitled to an immediate hearing in lieu of which he must be released upon giving a personal bond to appear, or by leaving his car, or he may deposit a sum equal to the maximum fine provided for the offense, any security deposited being returned upon admission to bail.

All acts inconsistent or contrary to the provision of the bill are repealed by it, and it is made to take effect on May 1, 1906.

Italian Test for Touring Cars.

An international competition for touring cars is being projected by the Automobile Club of Milan, to be held in Italy, starting the 15th day of May and spreading over eleven days. The tour of 5,000 kilometres will be divided into eleven daily runs, all but one of which will be over 400 kilos. (250 miles). The start will be at Milan and the routes to the various towns throughout Italy. The competing cars will be required to maintain an average speed of 30 kilos (18.7 miles) per hour, while not exceeding 40 kilos (25 miles), the maximum allowed in Italy. In connection with the event a sum of about \$25,000 will be hung up in prizes, in addition to the cups being offered by the Milan Municipal Council, and the Milan Automobile Club, and an object of art, the Grand Prix of Agriculture, presented by the Italian Minister of Agriculture.

Count Poeting Offers Two Prizes.

It would seem that the donation of prizes for the various degrees of excellence in connection with the automobile business has come to be a fad with certain classes of people. The latest burst of generosity to be recorded in this line comes, as have many of the others, from the other side of the Atlantic. Count Poeting, former president of the Automobile Club of Austria, has recently offered two prizes of \$200 each, the one for the best automobile invention from the mechanical point of view, and the other for the best literary work touching on the sport of automobiling.

The tire, lamp and speedometer trials of the Automobile Club of Great Britain and Ireland have been further postponed until Monday, 25th inst., upon advice of the makers. The regulations which already have been given in the Motor World, provide for practically all classes of tires, lamps and speed indicators.

CHICAGOANS IN CHARGE

Farson Chosen President of A. A. A.—Secretary will Remove to New York.

Chicagoans and Chicago influence will dominate the American Automobile Association during the next twelve months, residents of the Windy City having been elected president and secretary of the association at the annual meeting held last Thursday at the show. John A. Farson, millionaire automobilist, traction magnate, banker, lawyer, churchman and numerous other things, but above all, an "all-round good fellow," was the man chosen for the presidency. A. G. Batchelder, retiring secretary of the A. A. A., casting the proxies of sixteen clubs and State organizations for him as president, as later he cast them for Sidney H. Gorham, another Chicagoan, as secretary of the national organization.

John Farson is fearless, independent and aggressive and achieved considerable notoriety over his fights against Chicago's unjust automobile ordinances. He also made himself conspicuous through his advocacy of scarlet cravats and checkered suits as a gentlemanly adornment, but this is only a minor matter and now a matter of history. His election to the highest office of automobilism, it is thought, presages a new and golden era for the American Automobile Association and that his power in motor politics will be felt. Mr. Farson succeeds Elliott C. Lee, of Boston, and will enter upon his new duties the first proximo. Mr. Farson is also president of the Chicago Automobile Club.

Sidney S. Gorham, secretary of the Illinois State Automobile Association, secured the "plum"—the secretaryship of the association, to succeed A. G. Batchelder, who refused re-election as he is about to take up newspaper work. Mr. Gorham is equally energetic and a tireless worker, and will doubtless make his presence felt to no small degree. He will remove to New York City, this being considered the best location for carrying on the work of this office.

The report of Treasurer George K. Farrington showed a healthy balance of \$4,679.10 in the strong box, and the report of the secretary also showed a wonderful growth, 7,100 members now being on the rolls, which includes four State associations and 66 clubs.

Previous to the election of officers a new board of directors was chosen. Following is a complete list of the officers and directors:

President, John A. Farson, Chicago Automobile Club; first vice-president, William H. Hotchkiss, Automobile Club of Buffalo; second vice-president, Dr. Milbank Johnston, Automobile Club of Southern California; third vice-president, Louis R. Speare, Bay State Automobile Association; treasurer, George K. Farrington, New Jer-

sey Automobile and Motor Club; secretary, Sidney S. Gorham, Illinois State Automobile Association; directors, John Farson, Chicago Automobile Club; W. H. Hotchkiss, Automobile Club of Buffalo; Dr. Milbank Johnston, Automobile Club of Southern California; L. R. Speare, Bay State Automobile Association; G. K. Farrington, Automobile Club of New Jersey; William A. Rolfe, Massachusetts Automobile Club; Asa Goddard, Worcester, Mass., Automobile Club; Dr. F. E. Constans, Brockton, Mass., Automobile Club; Dr. E. W. Brantford, Berkshire, Mass., Automobile Club; S. L. Haynes, Automobile Club of Springfield; R. L. Lippitt, Rhode Island Automobile Club; David H. Morris, Automobile Club of America; A. R. Pardington, Long Island Automobile Club; F. H. Elliott, Syracuse Automobile Club; H. S. Woodworth, Rochester Automobile Club; N. M. Pierce, Binghamton Automobile Club; A. G. Batchelder, New York Motor Club; F. R. Pratt, New Jersey Automobile and Motor Club; G. A. Post, North Jersey Auto Club; W. E. Edge, Atlantic City Automobile Club; J. H. Edwards, Automobile Club of Hudson County; K. G. Roebeling, Mercer County Automobile Club; W. C. Temple, Automobile Club of Pittsburg; H. Bartol Brazier, Automobile Club of Philadelphia; W. T. White, Cleveland Automobile Club; Val. Duttonhofer, Jr., Automobile Club of Cincinnati; W. S. Belding, Automobile Club of Maryland; Asa Paine, Florida East Coast Automobile Association; A. B. Lambert, Automobile Club of St. Louis, and E. H. R. Green, Dallas Automobile Club.

Racers Must have Mufflers.

Mufflers must hereafter be used in racing cars. This is one of the radical changes that the racing committee of the Automobile Club of France has made in its rules. For a long time it has been customary to allow racing cars to throw their exhaust from the side of the engine, so enabling the usual length of heavy piping and muffler to be dispensed with, and resulting in increased power. The committee has resolved that racing cars must in the future be provided with an exhaust box fixed horizontally beneath the chassis and sufficiently high above the road to prevent the throwing up of dust.

More Jerseymen Enlist for the War.

The Union County Automobile Association, of New Jersey, was formed in Plainfield, last week, to protect the interests of automobilists, generally, and to fight the proposed Freylinghuysen bill, specifically. It was decided to engage ex-Senator Charles A. Reed to represent the association at the hearing of the measure at Trenton, next Tuesday, 20th inst. The following officers were elected: President, Dr. F. C. Ard; first vice-president, Dr. F. J. Zeglio; second vice-president, J. P. Stevens; secretary, A. B. Laing, and treasurer, George J. Tobin.

TO PROMOTE TOURING

Company Formed to Cater to Americans Abroad—Ambitious Plans of Project.

It transpires that the recently incorporated American-European Automobile Touring Co., of New York, has large and far-reaching plans. In brief, it aims to conduct automobile tours from London, Liverpool, Paris and Genoa on the 1st and 15th of each month during the outdoor season, with a special view of catering to the Americans abroad.

The promoters figure that of the more than \$150,000 Americans whom, it is estimated, visited Europe last year and who spent upward of \$300,000,000, comparatively few were able to tour the country in automobiles as they would have done had opportunity offered. The American-European Automobile Touring Co. proposes offording the opportunity; price \$70 for a two weeks' tour. They expect to start their service with 24 motor cars and 12 conductor-attendants, which, according to their prospectus, should pay a profit of 33⅓ per cent. the first year.

G. Radford Kelso, of the Martin B. Brown printing house, is at the head of the enterprise; John D. Reynolds, vice-president and treasurer, and George Vassar, Jr., secretary. A. Elliott Ranney, of the Elmore Automobile Co., of New York, is one of the directors. Offices have been established at 253 Broadway and subscriptions to the capital stock of \$150,000 are being invited.

No Recourse for Obstructionists.

A jury in the circuit court at La Crosse, Wis., has decided that in a personal damage case brought against the owner of an automobile the plaintiff cannot collect damages, even if the defendant is exceeding the speed limit, if said plaintiff fails to get out of the way and is injured. Ferdinand Simpson sued M. Boehm, and the case was decided in favor of the defendant.

End of Dead Horse Hill.

Because of a clash between the authorities of Leicester, Mass., and Worcester, Mass., Dead Horse Hill will be the scene of no more automobile hill climbing contests. The Worcester Automobile Club had calculated upon this hill for its annual climb this year, but it will probably have to seek another "mound."

Gets \$1400 Car for 25 Cents.

John A. Lyons, of Malone, N. Y., is happy. He won the \$1,400 automobile that was chanced off at the Masonic fair at that place last week. He held the lucky 25-cent ticket.

ONLY ONE CAR FINISHED

Accidents to Lancia and Cedrino Rob
Cuban Race of Interest—Demogeot
Wins for a Cuban.

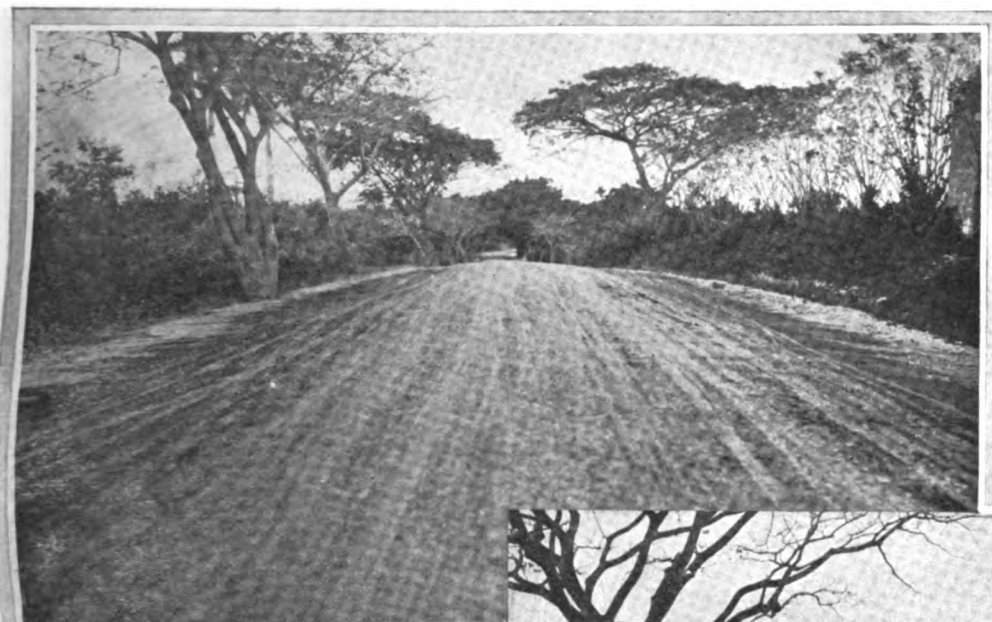
Although rain interfered with and delayed Cuba's second annual speed carnival one day, it did not rain the following day and there was plenty of good weather and big crowds, it did not wholly escape the ill

mixture of crude oil, asphalt and water for which the city of Havana appropriated \$7,000. The government also expended \$30,000 to complete the road in time for the race and in addition the local automobile association had subscribed something like \$14,000 in the tournament. Naturally, there were some disappointed Cubans when only one car finished and the others disabled to such an extent that the remaining events had to be called off until next year.

The "International" cup race, as it was

surprise when it was announced that he had overhauled Bernin before the cars reached Hoyo Colorado—the great hole. Then it looked roseate for Lancia, but Bernin and Demogeot reached San Cristobal, the end of the first lap, at 10:51 and 11:03, respectively, without any tidings of the two Italians. Half an hour later it was learned that Lancia's macanicien, Ajassa Battesta, had been thrown out while crossing a railroad beyond Artemisa. The car was going at the rate of 75 miles an hour when the accident occurred and Lancia stopped and hurried back to his helper, who was found lying in the road. He was pretty well shaken up and Lancia quit then, to take him to a hospital.

The accident to Cedrino also happened near Artemisa, where there is a "double-S" curve. So far as could be ascertained Cedrino attempted to take the curve at full speed and his car turned turtle. Cedrino and Capra, his mechanic, were both bruised considerably. Lancia's time to Artemisa, 52 kilos from the start, was 0:30:15 against Bernin's 0:34:30, Cedrino's 0:34:00 and Demogeot's 0:37:00. Bernin was the first to reach San Cristobal, the first control and where the return began, his time being 0:51:15. Demogeot's time was 0:54:26. The



VIEWS OF THE CUBAN COURSE.

luck which attended the Florida carnival. The fact that they were both in the hands of the same promoter may have had something to do with the "hoodoo," but it was really too bad for the Cubans that after going to such expense and making such elaborate preparations, their second attempt to hold a successful "international" road race should meet with such a disappointing result. For only one car finished of the four that started. This was the 80 horsepower Darracq that won the Vanderbilt cup race. It was driven by Victor Demogeot, the Frenchman who made the better than two miles a minute ride on the Florida beach. He practically walked over, covering the course of 218 miles in 3 hours 38 minutes 29 seconds, an average 59.77 miles an hour. Accidents put the other cars out of the running.

The 218-mile road race originally was scheduled for Sunday last, 11th inst., but a heavy rain made the course slippery and the officials decided to postpone it until the following day, after thousands had journeyed to the starting place at Camp Columbia, near Havana. The postponement did not keep the people away, however, for Monday was a perfect day. The race was four times over the stretch of limestone road from Camp Columbia to San Cristobal, 54.49 miles, in all 217.97 miles. The course had been well covered with a

called—there were exactly two nations, France and Italy, represented—was started from Camp Columbia at exactly 10 o'clock Monday morning, Maurice Bernin in Brokaw's 90 horsepower Renault, being the first to get away, he having drawn this position. Then followed at three minute intervals, Vincenzo Lancia (Fiat), Emanuel Cedrino (Fiat), and Victor Demogeot (Darracq), although the last named lost more than two minutes at the start, through a faulty clutch.

Lancia, the dashing Italian, was easily favorite in the betting, so there was little

rules required that the contestants remain at the control until the others had been heard from, and that each control was to be made in 90 minutes or less.

On the return from San Cristobal, Bernin lost valuable time from a puncture and was as good as eliminated before Camp Columbia was again reached. Demogeot arrived there in 51 minutes 6½ seconds and after that had the course entirely to himself. Interest waned, naturally, and many of the spectators left Havana before the finish, but among the faithful who remained till the finish was President Palma,



THE PALM FRINGED ROAD IN CUBA.

who, with his family and cabinet and members of the municipal council, occupied a box in the grandstand. Demogeot reached San Cristobal the second time in 58 minutes 9 seconds and was back at Columbia in 0:54:37½, his total time being 3:38:18.

A local race between two touring cars, in which there was \$15,000 at stake, the winner taking the sweepstakes, created more interest than the big race after the two Fiats were eliminated. The course was to San Cristobal and return, 108.98 miles. The cabled reports of this event, which were somewhat garbled, give the race to Dessarios, a Cuban, who drove a 30 horsepower Clement, with Luis Marx's 60 horsepower Mercedes second, and Juan Argulles' 30 horsepower Mors third. The times were 2:04:02, 2:05:42 and 2:35:27. Owing to the accidents to the big cars the other events which were to have been run off were laid over until next year.

Tales of a Queen Mother.

According to a recent report Margherita the Queen Mother of Italy, who is a most enthusiastic motorist, has decided that she will tour America in a motor car in the near future. She intends to "do" the country from end to end, and in order to avoid all unnecessary fuss and ceremony will make the trip "incog.," although this does not mean that she will descend quite to the level of the ordinary, everyday garden variety of automobilist who goes on tour. Instead of chopping off the handle to her name, altogether she has decided that she wants to be at least a countess, and has in consequence elected to be known for the trip as the Countess Stupinigi—a most soul satisfying mothful for anyone not familiar with the language. It is the name of one of her various castles, and so on that account probably considered as a legitimate fraction of her title which may now be assumed.

Since she took to automobiling Rome is said to have seen little of her, as she has devoted herself to exploring most of the countries of Europe, and, having exhausted whatever of novelty and change to be found within its borders, now yearns for the larger freedom of the unrestricted expanse afforded by the United States. Strangely enough, the Dowager Queen was formerly much prejudiced against the motor car and would not consider entering one, as she had regarded them as both ugly and very dangerous. One day her son, the present King, persuaded her to try a spin, and despite the fact that the brakes refused to work, resulting in a run down hill that made her fear for her safety and decapitating a dog as an incident, she became a convert and has since had so much experience that she can hardly be deemed a novice at motor traveling. She knows what it is to have a breakdown out in the country miles from any aid, to have collisions, to be stoned and to be lost for hours without anything to eat, but the more adventures she has the greater is her love of the pastime.

One of her most serious adventures took place in the wilds of Norway. She had been warned not to go into a certain district as the inhabitants were grossly ignorant, superstitious and ferocious, but the accounts of the scenery were such that she could not resist the temptation and the party set off, taking a Norwegian interpreter. A tire burst just at the outskirts of a small village and they decided to explore while repairs were being made, but before there was an opportunity to do so there strode from a menacing and muttering crowd that had gathered a gigantic Norwegian with a club as big as himself.

The interpreter came to the rescue and explained that the head of the party was a queen from a distant land who was touring their country and merely wished to go through the village to the other side.

"Queen!" snorted the Norwegian, "Queen of Death, who goes about in a chariot with a devil in it." At this very inopportune moment the engine began to race and throb in a most alarming way, but the giant stood his ground although the rest of the mob took to their heels. "I am not afraid of your magic," he declared, with a white face, "and if any of you come an inch further I will brain you as you stand," his words being emphasized by a shower of stones from behind the trees, the villagers having regained sufficient courage to return that far. A retreat was considered the better part of valor and it was carried out in perfect order barring considerable dodging of stones.

Queen Margherita is an admirer of Bret Harte and is anxious to see the wild and woolly West. While royalty is not kow towed to overmuch in Bull Frog or Tonopah there is little doubt but what the royal visitor would be accorded a most enthusiastic reception in which gun firing will figure largely if she strikes these or similar mining camps.

VANDERBILT CUP COMING BACK

Another Race in America Assured—Chairman Morrell Talks of Courses.

That there will be a contest for the Vanderbilt cup in this country in 1906 now appears assured. According to cable advices received from W. K. Vanderbilt, Jr., who went to France to definitely settle the disposition of his trophy, which is at present in Paris, it appears certain that the race will be held this fall, by virtue of Tracy's gaining third place in Dr. H. E. Thomas's Locomobile, in last year's contest and of France's refusal to conduct a race. But just where it will be run off is another matter. To quote Chairman Robert Lee Morrell of the three A's racing board: "There has been opposition in the past where there should have been cooperation. The race is an event of sufficient importance to any locality to have its residents come forward with a petition to that effect of their own accord," added Mr. Morrell, in response to the Motor World's inquiries.

"My information from Mr. Vanderbilt is official," he went on, "so that there is no doubt as to the holding of the race in this country, but we are tired of fighting injunctions and opposition. It is time that the residents of localities where there are good roads should realize the great advantage resulting from the holding of the race in their locality and make a bid for it, as is done in France, where substantial financial support is tendered. Last year's race was a financial success, netting about \$5,500, due in a large part to the increase of the entrance fee from \$300 to \$500, but the expenses amounted to \$19,000.

"Last summer I talked with Highway Commissioner McClintock, of Massachusetts, of holding the race between Boston and Worcester, as well as with Mr. McDonald, who holds the same position in Connecticut, as to a course in that State, and while we agreed that certain roads would be favorable for such an event, there was no definite understanding. We do not wish to commit ourselves to any particular locality at this early date," continued Mr. Morrell. "Any place in the country that has aspirations in this direction may make its attractions known. We are tired of opposition and are not going to encounter it if possible. As an indication that the value of the race to a locality is beginning to be appreciated, I have already received an application from the Board of Supervisors of Nassau County, Long Island, where the race was run last year, but no action will be taken on it at present."

Asked as to his relation to the post of chairman of the A. A. A. racing board for another year, Mr. Morrell said that it was doubtful if business interests would permit

him to devote the great amount of time and attention to the matter that its proper administration requires, and that accordingly he would not accept the position again. "But, if instead of centering power in a cumbrous racing board such as that of last year," he added, "there was appointed an executive committee of the racing board to consist of at least three members, each of whom was selected particularly for his fitness, and absolute control of racing management, was given this committee, I would be willing to serve as a member."

It is understood that considerable pressure has been brought to bear upon Mr. Morrell to make him reconsider his decision against accepting a reappointment, W. K. Vanderbilt, Jr., being among those who have urged him to retain the office.

Here's the Garage Apartment House.

"Tenants are requested not to keep more than two automobiles in their apartments.

"Automobile elevator begins running at 8 a. m.

"Please report any inattention of automobile elevator boy to the janitor's garage in basement.

"Ring bell one for gasoline, twice for oil, and three times for fire department."

Utopia seemed a step nearer for automobilists in Chicago last week when plans were announced for an apartment building in which every flat will have its own garage. If the scheme is put into effect as planned, dwellers in these unique twentieth century apartments can step directly from their living rooms into their automobiles, be conveyed to the street via the elevator, drive serenely away without having once lifted a foot since they entered the car. No more waiting in the snow or rain at the curb. The brilliant idea has been conceived by LaVerne W. Noyes, of the Aero-motor Company. The building will occupy 50 feet on Lake Shore drive and 152 feet on Elm street. It will be seven stories high and cost \$250,000.

The automobile room, as the garage will be called, is to be in the extreme rear of each apartment, facing Elm street. The room will be directly connected with an electric elevator big enough to accommodate any car except a "rubber-neck wagon." The Noyes building will provide accommodations for four automobiles for each flat, making a total for the building of twenty-eight. No doubt there will be many applications for the janitorship in the Noyes "motorists' heaven," for such a position in a building of this kind would tend to elevate the janitor and raise him to a higher plane than he already now occupies. He could run a nice little accessory store in the basement, and the chances for plum picking—Senator Freylinghuysen's proposed "motor vehicle autocrat" would not have near so fruitful a field to operate in as this janitor of the Twentieth Century flat.

THREE DAYS OF ALCOHOL

Subject Thoroughly Threshed out at Washington—Strong Attendance at Hearing.

That the proposed alcohol legislation will not be permitted to languish unthought of or die unmourned is clearly evident from the well attended hearings held in the Ways and Means Committee room of the House of Representatives during the latter part of last week. In addition to Secretary Wilson of the Department of Agriculture, there was heard at the first session, which lasted three and a half hours, R. F. Herrick, of Winchester, Mass., representing the New England section of the Society of Chemical Industry and the American Chemical Society; ex-Governor Bacheider, of New Hampshire, master of the National Grange of the Patrons of Husbandry, Paul Mehlin, President of the National Piano Manufacturers' Association, Commissioner Yerkes, of the Internal Revenue Office, and Prof. Charles E. Monroe, of George Washington University.

The addresses of these representatives of various industries were in the nature of pleas for legislation on the subject and were endorsed by Secretary Wilson, while Commissioner Yerkes and Prof. Monroe dwelt largely with matters of information concerning the working of a provision for tax free alcohol.

The second hearing held on the following day not only brought out almost the full roster of the Ways and Means Committee itself, but a very much larger attendance of witnesses in behalf of the movement. The speakers at the second session were likewise chiefly representatives of various industries, such as silk, hat and chair making interests, although there were also delegates from commercial associations, as the President of the Philadelphia Trades League, a representative of the Detroit Chamber of Commerce and of the Michigan State Grange, an organization of 50,000 farmers. Besides these there was a delegation from the Lynn, Mass., Painters' and Decorators' Union, accompanied by a member of the association who had become totally blind through using wood alcohol to remove paint in a closed room.

New York was heard from in the shape of resolutions adopted by the New York State Grange at a meeting in Geneva, endorsing the bills now before Congress, and also calling upon the State Legislature to urge upon Congress the necessity for the immediate enactment of this legislation.

The hearing of the third day was devoted entirely to listening to testimony of Dr. Wiley. This was in the nature of experiments showing the different forms assumed by alcohol. He admitted that it was possible to convert denatured alcohol back to a condition suitable for drinking purposes, but argued that the cost of such process would be greater than the manufacture of new alcohol from grain.

DETROIT SHOW MINUS DOGS

But Two Brand New Cars Crop Out—Michigan Products Conspicuous.

Detroit, Mich., Feb. 12.—There is no dog music at Detroit's "fifth annual," the second of the local shows to be held this year, which was opened this evening in the Light Guard Armory, under the management of the Tri-State Automobile and Sporting Goods Association. The absence of this sort of "music" is, indeed, the conspicuous feature of this year's exhibition. The array of howling canines which constituted the dog show held in connection with the previous exhibitions of motor vehicles, is missing. The Association will hold its dog show in March. It is just as well perhaps, for from the looks of the thing there would not be room in the Armory for both dogs and automobiles. As it is, the exhibitors are cramped for room, and many of them have been unable to get all their models in the spaces assigned them. The result is that the agents—it is almost purely local show—have been obliged to keep up a continual sprint between the hall and their places of business.

Almost all the leading makes are represented, including the Olds, Reo, Jackson, Cadillac, Northern, White, Aerocar, Pierce, Pope-Toledo, Columbia, Welch, Peerless, Autocar, Packard, Pungs-Finch, Thomas, Queen, Winton, Woods, Locomobile, Franklin, Rambler, Ford, Wayne, Maxwell, Reliance and Baker, in the pleasure line, while the Rapid and Soules delivery wagons and Woods gasoline and electric delivery wagons and trucks are also accorded spaces alongside their forerunners, cars of the pleasure type. Eighteen of the cars are Michigan productions.

Although it has been shown at the other shows, and is not exactly what might be termed new to Detroiters, the Aerocar, made in this city, is attracting considerable attention. The Walker runabout is another of the comparatively new cars, that is made in Detroit. One of the brand new cars, that had a crowd around it all evening, is the Paragon runabout, made in Detroit by the Detroit Automobile Mfg. Co. It is not surprising that it was the center of attraction, for the price—\$375, with a buggy top included—would suffice to draw those who "would a-motoring go" but haven't the price. It employs a two-cylinder air-cooled motor developing five horsepower, with direct drive. A newcomer in the field is the Motorcar Co., of Detroit, which is showing for the first time, three models of its Cartercar. There are two types of touring car and one delivery wagon, each using the same chassis, upon which is mounted a 20 horsepower, two-cylinder horizontal opposed motor, water-cooled. In sundries there is nothing that has not been shown at the other shows or that is not too well known to describe.

The really remarkable part of the show was that all the exhibits were in place by 7 o'clock when the doors opened. Chicago's show did not close until Saturday and the wares shown there were then rushed to Detroit in special cars, arriving here from seven o'clock this morning until late in the afternoon. How they all were gotten in the building and set up is a mystery which none but Detroit's energetic workmen can explain. The crowd at the opening night was greater than on any previous opening and augurs well for business to be done.

The exhibitors and the wares they are displaying are as follows:

Reo Motor Car Co., Reo cars; Seidler-Miner Automobile Co., Jackson cars; Cadillac Automobile Co., Cadillac gasoline and Baker electric cars; Wm. F. V. Ueuman, Soules delivery wagon; Northern Mfg. Co., Northern cars; Detroit Auto Mfg. Co., Paragon car; White Garage, White cars; J. P. Schneider, Olds, Pierce, Pope-Toledo and Columbia cars; Welch Motor Car Co., Welch cars; Standard Automobile Co., Peerless, Autocar and Packard cars; Pungs-Finch Automobile Co., Pungs-Finch cars; Rapid Motor Vehicle Co., Rapid delivery wagons and trucks; Grant Bros., Buick and Thomas cars; Blomstrom Motor Car Co., Queen cars; Olds Motor Works, Olds cars; Detroit Automobile Co., Winton, Woods, Locomobile and Franklin cars; Wm. H. Weber, Rambler cars; J. J. Miller, Ford Motor Car Co., Detroit, Ford cars; Wayne Automobile Co., Wayne cars; Maxwell, McLeod & Co., Maxwell cars; Walker Motor Car Co., Walker runabout; Aerocar Co., Aerocars; Motorcar Co., Cartercars; Reliance Motor Car Co., Reliance cars; S. F. Bowser & Co., Inc., gasoline storage outfits; Newton & Woodall; Hayes Mfg. Co., hoods, radiators and fenders; Hertz & Co., spark-plugs, timers, etc.; Detroit Steel Products Co., springs; Motor & Accessory Mfg. Co., supplies; Gray & Davis, lamps and generators; Edwin S. George; Shug Mfg. Co., ignition apparatus; Michigan Storage Battery Co., storage batteries; Monnier Cycle & Automobile Supply Co., supplies; Michigan Steel Boat Co., motor boats; Firestone Tire & Rubber Co., tires; Badger Brass Mfg. Co., Solar lamps; Edmunds & Jones, lamps; MacDonald, Wessels & Ames, supplies; Automobile Equipment Co., tops and supplies; C. F. Splittdorf, spark-plugs, coils, etc.; Auto Brass & Aluminum Co., "Perfection" oilers; Briscoe Mfg. Co., hoods, radiators, fenders, etc.; Hyatt Roller Bearing Co., Hyatt roller bearings; Wm. E. Metzger, accessories; Salisbury Tire Co., tires; Standard Oil Co., fuels and lubricants; Jones Speedometer, speedometers, odometers, etc.; Rands Mfg. Co., tops; Hydraulic Oil Storage Co.; Wm. Cramp & Sons Ship & Engine Building Co., manganese bronze castings; American Lamp Co., lamps; United Mfg. Co., "Little Giant" gasoline engines; O. C. Foster and Michigan Bolt & Nut Works.

BOSTON'S EMBELLISHMENTS

New England Show will be Marked by Pergolas and Grapevines.

When the Boston Automobile Dealers' Association set the example of employing a uniform system of decoration for the Automobile and Power Boat Show a year ago, it is possible that they builded wiser than they knew, for the idea was destined to be copied very largely, and to tax the ingenuity of the decorators to the utmost in providing new and pleasing combinations in all the more prominent exhibitions. But, however that may be, the management has promised this year not simply to follow its own precedent, but to introduce a few new kinks which will prove an eye opener to the public outside the Bay State. And, indeed, the general description which has been sent out this week seems not to belie the assertion in the least, for when the doors of Mechanics' and Symphony Halls are thrown open to the public on the evening of March 10th at the commencement of the exhibition, there will be revealed a scheme of decoration which in motif and execution will be both unconventional and attractive.

There will be a pergola covering the main aisle of the first great hall of Mechanics building and the two large aisles of Grand Hall—with a band stand at the intersection of the two Grand Hall pergolas. The hundreds of marbelized columns used for this decorating scheme will support the lattice overhead, from which will trail thousands of yards of grape vines hanging in graceful forms, vines and fruit sparkling and glittering with the myriad electric lights concealed among the leaves. The walls will be covered with green burlap capped with red, while trailing laurel will add the finishing touch of beauty. Floors will be covered with grass matting and spaces will be divided by white enamel railings supported by brass-capped posts. From the railings will be suspended a plaited drapery of dark green shade of Amure. All the signs on the floor have dark red backgrounds and gold letters and will be placed at a uniform height over each space, thus carrying out the uniformity that is so necessary in a show of this kind. In the Grand Hall the signs will be supported on white enamel posts.

The basement will be draped with yacht emblems, pennants and flags and will present a far better appearance than ever before. Rope railings will divide the spaces in which will be exhibited some of the finest boats, engines and trucks ever seen under one roof.

Symphony Hall, where the overflow will be housed, will also present a particularly attractive scene as the natural beauties of the building will be enhanced by the apple blossom decorations adopted by the management.

TINKERING AS A DISEASE

Some of the Questions that Arise and Some Points to be Considered.

Many persons live in a state of perpetual panic lest they be ill. Many motorists, including those who have just acquired their first car and sometimes those who are just finishing their fifth, suffer from a chronic disease which for want of a better name has been styled "Tinkeritis." Automobilists who are afflicted with this malady are like the small boy who is not content until he has taken his watch apart to discover what makes it go and then wonders why it does not run after he reassembles it. The motorist who sits at the driving wheel continually in a state of high tension, straining his ears for symptoms of knocking in the engine, is sure something is grinding that ought not to grind.

Is he unhappy? No, not at all. The only misery a sufferer from "tinkeritis" has to endure is when everything goes right. There is an old saying, "If you look for trouble you'll surely find it," and it seems to be well applicable to the man who is forever and always tinkering with the mechanism of his car. The paradise of the victim of "tinkeritis"—that is, motor "tinkeritis"—is to have his ignition balk, his mixture to become chaotic, added to a broken crankshaft and a frozen lubricator all in the space of five minutes. He evidently thinks cars are not built to go, but to allow their owners eternally to crawl around them for the purpose of mechanical adjustment.

"I would I were a motor maker," is an everlasting theme of the tinkermaniac, who thinks the motor millennium would then arrive. Not once does it occur to him that manufacturers of automobiles know the first elements of their construction. He is apparently looking for the car to give trouble and it does. The trouble arises eight times out of ten from the mere fact that the owner suffers a violent attack of "tinkeritis."

Abnormal repair bills frequently are due to amateur "tinkeritis." Running cost depends largely upon the presence or absence of this microbe, which flourishes and waxes fat in so many garages. Like the mumps or the measles seizing upon the young and defenseless—so does this disease frequently attack the novice. The "tinkeritis" fever may wear itself out with the first car, but the chances are that the car will be the first to succumb. It is, however, when the disease takes hold of the veteran that the case is serious and the cure doubtful.

In its first stages the sufferer proves a veritable gold mine for the repair man, but presently he becomes harmful to the industry. His car always is in a state of absolute breakdown, mechanical exhaustion or feeble convalescence. Its debility and invalidism are public object lessons to his

friends and neighbors to beware of the automobile. They do not appreciate nor stop to think that his car was a sound and healthily-constituted vehicle until its owner developed the malady and converted it into a broken-winded creak.

Nearly every owner has to face an attack of "tinkeritis," just as he was obliged to grapple with a period of teething or a spell of whooping cough in his infantile days, and a temporary phase of tinkering on his first car teaches him many things relative to the internal anatomy of the machine. But "tinkeritis" in the owner of a second car is apt to prove a dogged disease—and, if not hurtful to the man himself, is not the best thing for the car.

What they Call it.

Grandma says we're right in style,
A'sittin' in our automo-bile.
Grandpa says we're fit to kill,
A'ridin' in our automo-bill.
Ma, she says we ought to feel
Grateful fer our automo-beel.
Pa says there ain't no other man
Kin run an auto like he can.
Auntie preaches near and far
'Bout our lovely touring car.
Uncle Bill says he ain't seen
Nowhere such a good machine.
Brother Jim, he keeps a-braggin'
'Bout the speed of our new wagon.
But, oh, it sounds so grand and noble
When Sister Sue says automobile.
—Puck.

Motor 'Bus as a Dressing Room.

Rather a novel use for one of the London motor 'busses has resulted in its conversion into a traveling green room in order to accommodate an actress who does her "turns" at two different theatres some distance apart with but a short interval between. In fact, she has but forty-five minutes in which to leave the stage of the Gaiety as the "Spring Chicken," transform herself into one of the characters of the "Hero and Heroine" at the Palace and return to resume her part at the first theatre, which entails another change of costume. Just how rapidly this lightning change process must be effected may be realized from the fact that the performance at the Palace requires twenty minutes. A Vanguard gasoline driven motor 'bus has been curtained and daintily fitted as a dressing room and all changes are made en route.

Responsibility for Hired Cars.

Whether a person hiring a motor car is liable for tire repair is a point just decided by a Manchester, England, court. A British motorist hired a car for \$25 a day for a run from Manchester to Lands End. A back tire burst and a new one, costing \$55, was paid for by the customer, who sought to recover from the owner. The judge decided that persons hiring motor cars, like persons hiring cabs, were not responsible for any damage and gave judgment for the customer.

THE CHOOSING OF A CAR

Some of the Symptoms and How it Usually Affects Most of the Victims.

Probably no question is easier to enlarge upon than that dealing with the choosing of a car, and probably none is more futile when considered from any but the most general standpoint. For the whole matter so hinges about the individual tastes of the prospective owner, that for another to attempt to dictate to him in any specific way, is but a waste of time, and on that account the generality of the advices given to owners, and expecting owners, is as worthless as it is explicit and detailed. There are, however, several general points of construction, which are of considerable importance in the service of any machine, and which may be applied with equal aptitude to all types.

In the first place, the question of type, weight, power and price having been fixed upon, it should be noted that the maximum of stability and accessibility have been secured in the design of the machine, for upon these two matters, hang more of the worth of the car than would at first appear to the novice. Second only to these, it should be noted that that wherever possible the working parts have been enclosed and protected from dust and dirt, and that the method of enclosure adopted has been such that the parts themselves can be got at with ease. This applies not simply to the vital parts of engine and transmission, but to the other mechanism which may be so disposed that it is subject to derangement or injury as a result of the action of the finely divided particles of dust from the road when mingled with and carried in the surplus lubricant. The mere covering of the entire under side of the machine, and the enclosure of the articulations of internally expanding brakes, and cardan shafts, for instance, is not entirely effective unless the enclosure is made complete, and at the same time, readily demountable in case of need.

A matter in connection with the lubrication of the working parts which is quite likely to escape the novice is that of the arrangement of the piping from the central lubricator to the various bearings which it supplies. This should be substantially put up, and should at the same time provide for the working of the different parts of the machine so that no kinking at the bends, or tearing away from the connections can occur under ordinary usage. All bends should be made with a fairly large radius of curvature, and the disposition of the leads should be such that there can be no chafing against any of the moving parts.

The Meeting of Extremes.

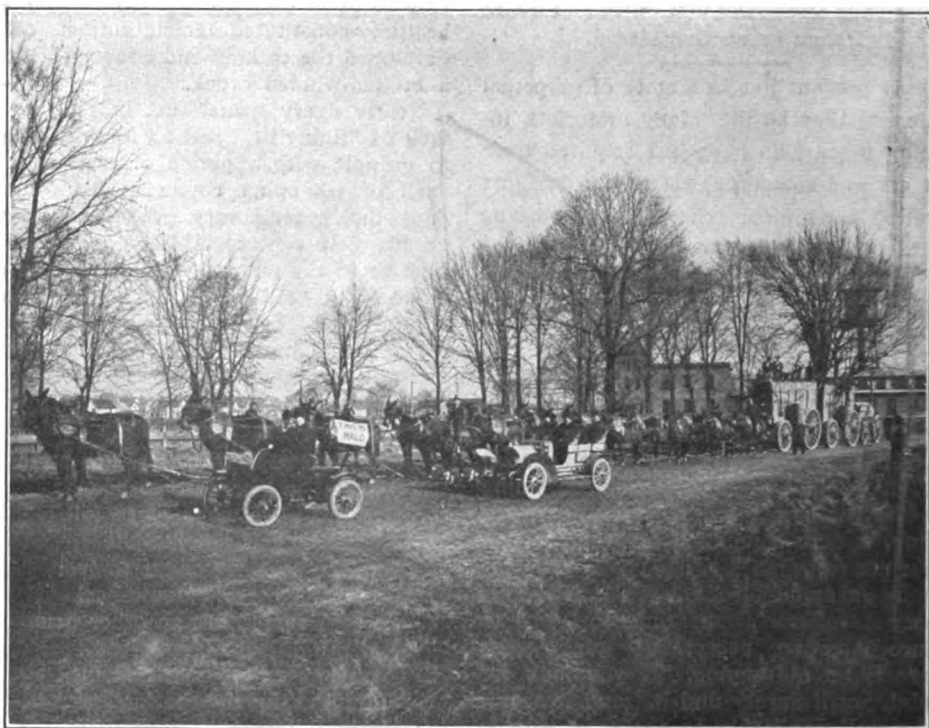
As to the mechanism itself, it should be seen to that all arms are fastened substantially to their rods or shafts, so that there shall be no possibility of their working loose in service. Keys should be of ample size and depth, and wherever possible, the principle of the taper fit should be used to insure the maximum of rigidity with the minimum of dependence on the keys and nuts which are used simply as fastenings. Particularly in connection with the operating levers, it should be noted that there is little or no spring when the parts are brought into use as this always tends to wear away the bearings, no matter how solidly they may have been made originally, and leads to a deal of complication when the car has been in use for a few months. In many otherwise practical machines, the clutch pedal shaft, shows a visible amount of deflection when the pedal is depressed, and this alone should be taken as an indication that it is not sufficiently strong for its work, even though the adjacent parts may be amply solid, and the deflection can apparently do no harm in any way.

It should be noted that all connections between the links and arms are made in such a way that the pull exerted upon them is in direct line, that is to say, that no amount of normal service can tend to rack the components out of line, and that the adjustments are properly locked in secure fashion. This, of course, implies that all nuts and bolts used in making such adjustments shall be protected by lock-nuts and cotter pins or other locking means where practicable, and that in permanent or semi-permanent adjustments, as in the mounting of the motor and transmission, lock washers shall be used.

The adjustment of all moving parts should be looked into, and care taken to note that there is provision for further adjustment, and that in case an adjustment is not perfect in any case, it is not the fault of the mechanism, but rather that of the assembler. Special care should be taken to see that there is no lost motion—particularly in a new car—between the various parts. And in connection with this, the amount of spring of the parts should be noted, and the point where the yielding occurs noted, and the cause ascertained.

In connection with the ignition apparatus, it should be seen to that the wiring is located in such a way that it is as little exposed as possible, and that it is put up in a workmanlike manner, and without stretching or kinking the conductors. The manner of making the terminal connections should also be looked into, to see that they are permanently and substantially made, and that there is no possibility of their breaking, through the fraying of the wires at the binding screws, or through the burning or tempering of the wires, in cases where soldered connections are employed.

All of these are minor details in themselves, yet they may be taken as a measure



The Twenty-Mule Team and the Oldsmobiles.

of the degree of care which has been laid out in the construction of the hidden parts of the car, and are in reality of more vital importance when it comes to a consideration of the actual service which can be got out of a machine on the road, than the true novice can be made to believe, generally speaking. The more expensive grades of car at the present time, are little likely to be found at fault in any of these respects, though many of them have certain minor flaws in construction, which are apparent to the trained mechanical eye at the first glance. The cheaper grades of machine, however, which have been built in more economical fashion, and under greater restrictions as to the cost of assemblage, are frequently open to a great deal of criticism in this respect. The discovery of minor faults of the sort indicated, need not of necessity condemn an otherwise satisfactory machine, but they should lead to a thorough examination of the parts found to be at fault, to see that the cause is not more vital than at first would appear, and that the drawback, whatever it may be, cannot affect the running of the car to any material degree. These are things which come out when the owner has once become fairly well acquainted with his machine. The point is, however, that he should take care to gain the most intimate acquaintance that circumstances will permit before he has committed himself, rather than afterward, when the knowledge gained may involve a considerable outlay of time and money, or even when some accident may have occurred which though springing from an insig-

nificant source, is by no means trivial in its effect.

How to Strike a Light.

One usually has a box of matches in the daytime, but many motorists find on a wet, windy night that they have either used all their matches in trying to light their lamps or have forgotten the matchbox. One of the fraternity who frequently has been perplexed by this dilemma suggests the following: Disconnect the high tension cable from the spark plug in the motor and connect to a spare plug; lay this in the cylinder head, keeping the terminal away from the metal. Make a small torch by cutting a cleft in a stick and fixing a piece of waste, paper or rag therein; turn the starting handle until the plug is sparking, soak your torch in gasoline taken from the carburetter and you have the necessary light. If you have an open spark gap in the circuit the light can be obtained from this without unscrewing the terminal.

Providing an Extra Air Inlet.

For the benefit of those users who desire to apply an extra air inlet to a carburetter which has not originally been equipped with such a device, an inventor has recently contrived a suitable valve which can be clamped to the outside of the inlet pipe between the mixing chamber and the throttle valve without altering the structure or arrangement of the existing vaporizer. It may be applied by simply cutting a hole in the intake and clamping it in place.

IGNITION REVIEWED

**How it has Evolved from the Hot Tube—
Tendencies of the Present and Prob-
abilities of the Future.**

There are few dissenters from the dictum that decrees the use of mechanically operated valves or forced feed lubrication, or similar matters of relative importance to the proper functioning of the motor, but it is apparent that a process of evolution is going on where the ignition is considered. In one respect the matter of ignition is equally well settled as that of certain other features, such, for instance, as the shaft drive, inasmuch as a majority of all the cars on the market use the high-tension system.

On the other hand, it cannot well be compared with such an item as the shaft drive, for this is not alone a feature that is gaining new adherents constantly, but it is, moreover, considered more as a finality. Accessions are likewise being made to the ranks of the users of high tension ignition, but they are without exception newcomers in the field. They have never used any other while many of the new shaft driven cars once used double chains, and, in some instances, the single chain.

How Designers Have Differed.

As a basis for stating that ignition generally is a question upon which designers as a body are not uniformly agreed as upon a number of other features, it may safely be said that the high tension system is not regarded as final by any means. Seemingly less progress has been made where this matter of prime import is concerned than in many others—ignition appears to have stood still as far as any radical improvement is concerned. This refers more particularly to the years 1903 and 1904, during which time little was done except to perfect the details of construction and design of the various component parts, such as coils, vibrators, switches, distributors and the like. Where the latter are concerned the great advances made are without doubt responsible for the immensely increased reliability of ignition systems as a whole. Better contact making devices and better distributors, greatly improved coils and trembler machines, all these have contributed so largely to steady working that the designer is naturally loth to part with what serves the purpose well for something which, though it may promise vastly greater simplicity and correspondingly greater reliability and ease of adjustment and repair, is, nevertheless, not cheaper and involves a radical disturbance of existing features. Probably this policy of "let well enough alone" is responsible in great measure for the continued adherence to the same system in such a large number of instances.

In going forward, those designers who

were not content to follow the general run but wished to strike out for themselves, have gone backward. Apparently a contradiction in terms, but in a sense true, for in leaving the beaten path, these dissatisfied seekers after improvement and simplicity have reverted to the low tension make and break system of ignition that was discarded but a few years ago to make room for the competitor which it now in turn threatens to oust. In order to make the present status of both perfectly clear it is necessary to trace the trend of improvement backward for several years.

Daimlers's Hot Tube.

To begin with its inception, it is well known that Daimler found the ignition the first and most serious stumbling block he encountered in the adaptation of the internal combustion motor to a road vehicle, and it was something upon which he worked for a considerable length of time before arriving at a result which warranted giving it a road trial. The result of his experiments was the hot tube, a device that motorists who have joined the cult within the past three years have no conception of. It consisted of a small platinum tube, very small in fact, extending a short distance into the combustion chamber horizontally at a position close to the top of the cylinder. At its outer end this contrivance carried a small hood extending vertically above it for a few inches and directly beneath it a small cup similar to those used on gasoline lamps and torches. And starting the hot tube was effected in the same manner as in the case of the latter, except that as soon as hot enough to fire the charge the working of the motor was relied upon to maintain the platinum at the right temperature. A small amount of gasoline or alcohol poured into the cup referred to supplied the initial source of heat, and under favorable circumstances an ounce or two of fuel was sufficient to get the engine under way.

The disadvantage of such a system readily will be apparent, but that it served the ends of its designer by accomplishing what was intended of it until something better could be devised goes without saying, for all the original Daimlers, as well as the Panhard cars, were equipped with it. Nor is this such a matter of ancient history as it may appear to be to the casual observer unacquainted with its history, for it was a feature of the Panhard cars as late as 1902, and when the latter firm first took up electrical ignition it was merely as an auxiliary. Faith in the original remained firm to the extent of continuing its installation until electricity proved itself beyond peradventure its superior. Naturally the greatest inherent defect of this predecessor of the jump spark on the car was its liability to become cooled unduly so that it failed to fire the charge, rendering a repetition of the starting process necessary. This and the impossibility of altering the time of ignition proved its undoing.

Electrical ignition was not wholly a nov-

elty at that time for it had been in use to a considerable extent on small stationary and marine motors, although the use of the high tension current and the jump spark plug were a departure. A modification of Daimler's hot tube was in use to a great extent on stationary gas engines, the proper temperature being maintained in this case by burning a gas jet at the base of the hood of the tube. For engines of 25 horsepower or over this is still a common method of effecting ignition, but on lower powers it is extremely wasteful of fuel, in the case of five or six horsepower engines using as much if not more for this purpose as is required to run the engine itself, for the proportion of air used is greatly less.

Advent of Electricity.

This need of great economy led to the adoption of the electric current in the first instance. The method of utilizing it consisted of the familiar hammer and anvil, the source of energy being represented by a dry or wet primary battery, usually of the open circuit type. The sparking capacity of the current was increased by placing a single wound, highly self-inductive spark coil in the circuit. Both as regards efficiency and economy this system is without an equal for the small, slow speed stationary engine, and probably the fact that it operated so well on this type of engine is responsible for the small amount of attention devoted to its improvement. Hot tube ignition of any character was naturally unfitted to the needs of the designer of marine engines and to the latter must be accorded considerable of the credit for advancement in this direction. But apart from its changed environment there was not much to distinguish the operating conditions of the small marine motor and its shore competitor, so that here also no great amount of improvement was found necessary to render the adaptation a success. With increased speed in the marine motor came a demand for a sparking mechanism that would not break down under the influence of wear in such a short time, a fact that shortly led to the designing of the wipe contact as well as other modifications of this portion of the mechanism.

But high speed from the point of view of the stationary or marine engine designer and from that of the builder of automobile motors is a very different quantity indeed. It may well be doubted if many of the automobile motors of early vintage could be governed to run as slowly as the average normal speed of many a stationary engine using the make and break system of ignition. So that apart from its crudity, it is not at all to be wondered at that when transferred bodily from one to another this method of producing the spark in the combustion chamber proved practically an utter failure. Its parts were cumbersome and heavy and their movement entailed the use of equally heavy actuating parts, the addition of which only tended to further burden a mechanism that was not any too well un-

derstood at its best. But more than all that, was the overpowering demand of this system for current. As if it were not enough that the moving parts should wear out or shortly go to pieces under the strain imposed by the high speed engine, it was impossible to obtain a battery that would survive the heavy draught made upon its energy for very long. One to two hundred impulses per minute and five to six hundred were totally different quantities and no type of cell made, whether primary or secondary was found adequate to the task.

Direct Current Generator.

The one thing remaining was the small direct current generator, but as this was in its infancy it likewise proved a great disappointment. Such machines can only be designed to produce their output within a limited range of their normal speed; over-speeding causes them to burn out and a drop of more than 10 or 15 per cent. causes them to refuse to generate. The task of the automobile engine builder in overcoming these first defects of the very life giving element of the motive power is not entirely appreciated and it is barely to be wondered at that he went from one thing to another and was at that time willing to adopt anything that offered sufficient promise of fulfilling this all important duty. The low tension make and break system accordingly was of short duration on the automobile motor. Indeed, only a few of the pioneers of the art resorted to it for some adopted the jump spark from the outset and later comers were only too glad to be able to follow in their footsteps.

Coil With Contact Breaker.

Just who was responsible for the invention of the combination of the induction coil with a contact breaker and a spark-plug—the elements of the high tension system, does not appear and, so far as known, no patents have ever been taken out on any system of this kind as a whole, though there are patent rights without end in connection with its connection with its various components. Suffice it to say, however, the high tension system antedated the advent of the automobile by quite a few years. But it was not until taken up generally for the use of the motor car that its possibilities were ever developed.

Since then it has been consistently adhered to, although as already stated, practically the only improvements made in it during the past decade have been in the nature of refinement of detail and it is needless to add that coils, switches and other accessories now to be had in such endless profusion and nicety of construction were then an utterly unknown quantity. So far as that most essential component of the system—the source of current, was concerned, this did not change for several years. The dry cell was selected owing to its compactness and freedom from fluid solutions and to its vagaries as then consti-

tuted, must be attributed a large part of the afflictions that beset early experimenters. The dry cell of to-day bears little resemblance to its predecessors of five years ago, where efficiency is concerned. Following it came the small accumulator and the likewise diminutive generator, the adoption of neither of which gave the motorist undue cause for congratulation at the outset. In 1903 the high tension magneto made its appearance in the American field as a foreigner, for it came from abroad.

Advent of the Magneto.

Such were existing conditions at the close of 1904; American cars represented practically every known type of electrical ignition except the low tension make and break and the show of 1905 was signalized by the appearance of one or two instances in which this was a feature. It had long been considered that the excessive momentum and inertia of the moving parts necessary to actuate the tripping or wiping mechanism in the cylinder would prove an insuperable obstacle to the adaptation of this system to the high speed engine, a fact that probably accounts for the length of time it was allowed to slumber undisturbed while the high tension was being developed. To its recrudescence, which dates back but a year or two, must be attributed what has already been referred to as the unsettled state in which the matter of ignition presents itself at the opening of the shows of 1906. Not alone is there too much involved to make this a possibility of even the near future, but there is also the factor of initial cost in the adoption of anything new. This will be plain by tracing back the course that the current producers have taken on the car. From a pinnacle where it was the only thing in the market, the dry cell has been relegated to the low-priced car; the small direct current generator can hardly be said to have achieved unbounded success in this field, it has appeared here and there but never for very long. In the meantime the accumulator and the high tension magneto have developed strength to an extent that makes their use practically universal on cars above a certain figure. The accumulators form an auxiliary to the magneto where the latter is employed and where not, the storage plant is duplicated.

Duplication of Ignition.

Duplication of the ignition was in fact one of the most marked features of last year's models and the experience of the past twelve-month has demonstrated the great value of such a precaution so conclusively that it is now attempted on even the lowest priced cars by providing a second set of dry cells. From this it reaches its limit in the other direction on a car embodying complete high and low tension ignition systems; accumulators, coils, distributor and spark-plugs on one hand and a low tension magneto with make and break mechanism on the other. Between the two

were to be found varying degrees of duplication, the majority taking the form of a second set of accumulators and an additional unit coil. That this is a tendency which is general regardless of the cost of the car and which is bound to become more and more so with the year hardly needs repeating.

In this connection, however, it was most noticeable that those makers who have had the temerity to break away from established standards so utterly as to adopt the low tension magneto and mechanically actuated igniters considered themselves in a position where duplication on any such elaborate scale was totally unnecessary. No stronger evidence of their faith could be forthcoming and the experience of the past year has fortified it to an extent where, if exceptions there be from the rule, that a duplication of at least some vital part of the ignition system is a necessity, it will be found among the ranks of those who have gone back to the formerly despised make and break system, but have brought it forth in a guise in which even its staunchest supporters of old can see no resemblance to former practise except in principle.

About Future Tendencies.

This, then, must mark the future tendencies where ignition is concerned. The high tension system having been brought to a state of development where further improvements appear problematical, several makers have considered the time ripe to drop it. That there will be new adherents to the ranks of these dissenters from time to time goes without saying and henceforth it will be an unceasing battle between the supporters of the different principles. It must be high or low, the single instance referred to at last year's show in which both were embodied hardly marking a precedent that will be followed owing primarily to the cost of installation as well as to the fact that such a step would be directly counter to the advantages of the extreme simplicity and lack of parts aimed at by those favoring the low tension. And just here there enters the element that will deter many from becoming disciples of the new cult until it has become more firmly established—expense.

Just how much greater the cost of installing the low tension magneto and the mechanical igniters with their push rods, springs and cams, is than that of the high tension system, none but a manufacturer can accurately calculate, but it is safe to say that it will approximate at least double. Competition has assumed a keenness where manufacturing costs must now be very closely figured and this difference presents a drawback not readily overcome, unless as is done in at least one instance, the Locomobile, the magneto itself is made in the home factory of the car. But even at that, it cannot be brought within the reach of any but the higher priced cars and there is little likelihood that it will appear at or under the

Putting Tires to the Road Test



\$3,000 mark. While the cost of the generator itself forms a very important item it is not due to this alone by any means that one so greatly exceeds the other, for it has only been through the employment of the most accurate work on materials of the highest grade that the use of this system on the high speed motor has been made possible. By totally discarding the crude prototypes that worked so well on small, slow speed stationary engines and that failed so dismally on the automobile, in favor of parts weighing but a fraction of their predecessors it has been found possible to overcome the disadvantages of excessive inertia and momentum. Naturally this class of work is beyond the manufacturer who is building a competitive car—that is, one to sell at as low a price as possible consistent with good work, such as a number of the four-cylinder cars being put out at \$1,800 or less for the coming season. There is on the other hand so much competition between the makers of accessories for high tension systems that contact-breakers, coils, switches and distributors that are far better than the best of but a few years ago may now be had at a fraction of what the latter cost.

This must, of course, determine the choice of manufacturers of such cars and there is little to be looked forward to in the shape of novelty or radical departure on any but the more expensive examples of the builder's art. That where the latter is in evidence it will take the form of the

low tension system with its simple heavy generator is generally conceded. And further than that, developments are to be looked for in the case of those who have already made this a standard part of their equipment for the past year, for it is naturally to be expected that its present form is but an introduction to improvements that are to come. It is not difficult even for the layman, to realize that the use of push rods, springs and cams embodies over-much complication and an excess of small moving parts that are bound to require more or less constant attention. They are unnecessary it would seem, nor is there any need of substituting something else; they may be eliminated entirely and this is what has been done in one or two instances. By raising the ignition cam shaft from its customary place at the side of the lower end of the cylinders, to a position just over or under the igniters themselves, it is easy to actuate the latter directly from the cams instead of through the medium of rods without the addition of any superfluous mechanism. But even simpler than this is a plan that eliminates all moving mechanism to accomplish the sparking in the cylinder. In order to effect this, one of the many magnetic spark-plugs devised in the past few years is employed, the same current that actuates the plug also causing the spark. The use of such plugs with batteries has not been found practicable owing to the amount of current required, but in conjunction with the low tension generator of

ample capacity and substantial build this is a system that represents the very acme of simplicity.

But even this, should it prove highly successful, can hardly be said to represent a goal that marks finality of design in this respect, for the possibility of incorporating the generator with the motor itself, instead of making it an accessory, is something that has only been touched upon and must sooner or later come in for more attention. This may be mentioned merely as one of many possible developments that the future may bring. IGNITOR.

How Hartford Tires are Tested.

Pig lead by the ton, plus car and driver, are employed by the Hartford Rubber Works Company in testing their Hartford Dunlop and Clincher tires. The car shown is equipped with Hartford Dunlops and the idea is that the only satisfactory test of tires is based upon their performance on the road.

The Hartford Rubber Works Company employ this method of taking absolute records of their average production, and are thus enabled to know at all times whether or not the tires are coming up to the high standard which has been set.

The car without the driver weighs 4050 pounds, pig lead being used on the rear platform to secure the increased weight. The driver has instructions not to run less than 100 miles each day irrespective of weather conditions.

QUEEREST OF MOTORS

**It has Curved Cylinders and no Crankshaft
—The Objects Sought.**

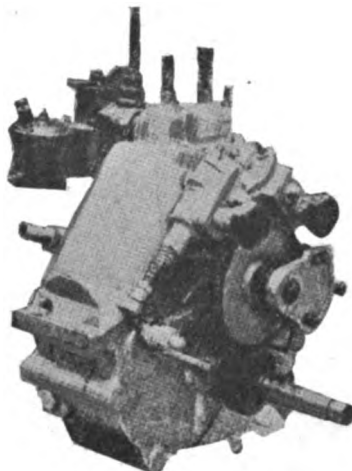
Despite the now generally prevalent uniformity of gas engine design, there are to be seen here and there motors which are radically different from the common run of the type, and from time to time additions of no little importance are made to the ranks of the unusual. There are many of them, which are of interest merely as studies in design, while others develop a totally new method of operation, and are worth far more than the passing consideration which their freakish appearance would seem to indicate. One of the most recent and radical new comers of the latter order, is the Rekrab two-cylinder motor, a British production, which is advertised as having curved cylinders and no crankshaft, and although the description is both silly and incorrect, since all cylinders are curved, and the machine really has a crankshaft, the affair itself presents considerable food for thought in the method of construction.

In place of the usual connecting rod mechanism for transforming the reciprocating motion of the piston to the rotary action of the driving shaft, the old principle of the slotted link and sliding block has been adopted. The pistons, however, instead of traveling in a rectilinear path as is commonly done where this method of transformation is used, follow the arc of a circle the centre of which is located at a point in a horizontal plain with the driving shaft, and but slightly above it. As a result of this, the cylinders are formed as segments of an annular ring, their construction apart from this fact being perfectly regular. The slotted links in which the crank bearing blocks ride, are formed in the centre of annular curvature of the cylinders, and are extended beyond the crankshaft, and offset to attach directly to the pistons themselves. Thus the pistons and arms are rigidly connected together and vibrate backward and forward pendulumwise, while the crank bearing blocks oscillate in their slots to accommodate the circular travel of the crank pin.

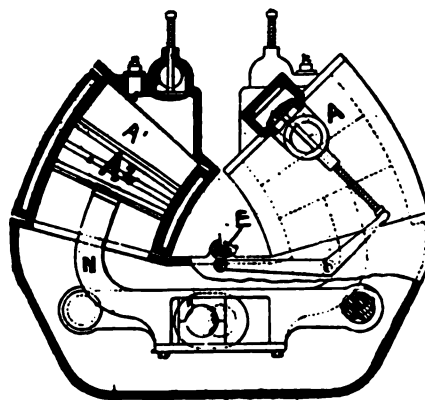
As will be seen from the accompanying illustration, the arrangement of the two cylinders A, A', permits of a very compact construction in the motor. The piston A2 shown midway of its travel, is fixed to the arm N, which is extended and pivoted at the point P, while the sliding block k, encloses the crank pin S. The motion of the piston is circular, about the centre of curvature P, while the block K slides back and forth in its guides, carrying the crank pin circularly. The arrangement of the cylinder A is similar in every respect. The inlet valves are automatic, while the exhaust valves are actuated by rocker arms from the cam shaft E in the manner indicated. Ignition is by jump spark, and the effect of

the construction is to produce a motor which is singularly compact and rigid in its arrangement.

A point in connection with the transformation of the reciprocating motion of the pistons into the rotative effort of the shaft, is that while in the ordinary arrangement, the outboard and inboard strokes of the piston are represented by equal arcs on



the crankshaft orbit, in this case, the arcs are of unequal length, the advantage of the longer being given to the working stroke, which, of course, means that the impulsive effort of the gas is applied through a greater proportion of the revolution of the shaft than in the common type of motor. By the same token, however, the lesser arc is given over to the exhaust,



and compression strokes, which carries with it, in the former instance, the drawback of giving less time for the clearing of the cylinder. This disadvantage, it is possible to remedy by proper design, of course, but it should not be lost sight of as an existing fact.

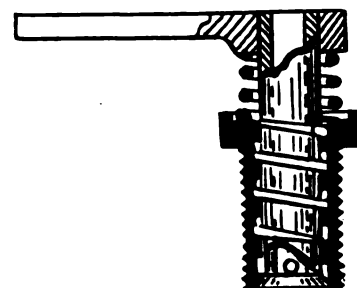
The use of the annular cylinder and the difficulties evidently attendant upon its construction, and also the difficulty of the proper construction of the piston packing, would seem to militate strongly against the ultimate success of the idea in its present form, but the motor is worthy of careful consideration on account of the property just indicated, which it is probably the only machine to attain. It is being manufactured by a firm in Lytonstone, which is planning to install it regularly in a car within a short time.

PET COCK IMPROVEMENT

**One of the Little Things, Long Neglected,
Finally Receives Attention.**

Pet cocks on the automobile motor, whether as compression reliefs or for drainage purposes, are the same to-day as they were long before the motor car was thought of. The same as they are for every other kind of work requiring them, and it has remained for the designer of the Parson's kerosene engine to invent an improved form. This new Parson's valve is a simple and ingenious piece of mechanism, readily dismounted should occasion make it necessary.

It consists of four pieces, a screw bushing, a valve spindle, control lever and a small helical spring. The valve spindle has a very coarse thread turned upon it.



which engages a corresponding thread on the inside of the bushing. But instead of screwing together tightly, considerable play is permitted between the two, and in this lies the chief distinction of the valve. An ordinary conical valve head forms the lower end of the stem, and just above it are four small ports communicating with the hollow interior, which is open at the other end to the atmosphere. Any leakage through the valve can in consequence, pass through the hollow valve spindle.

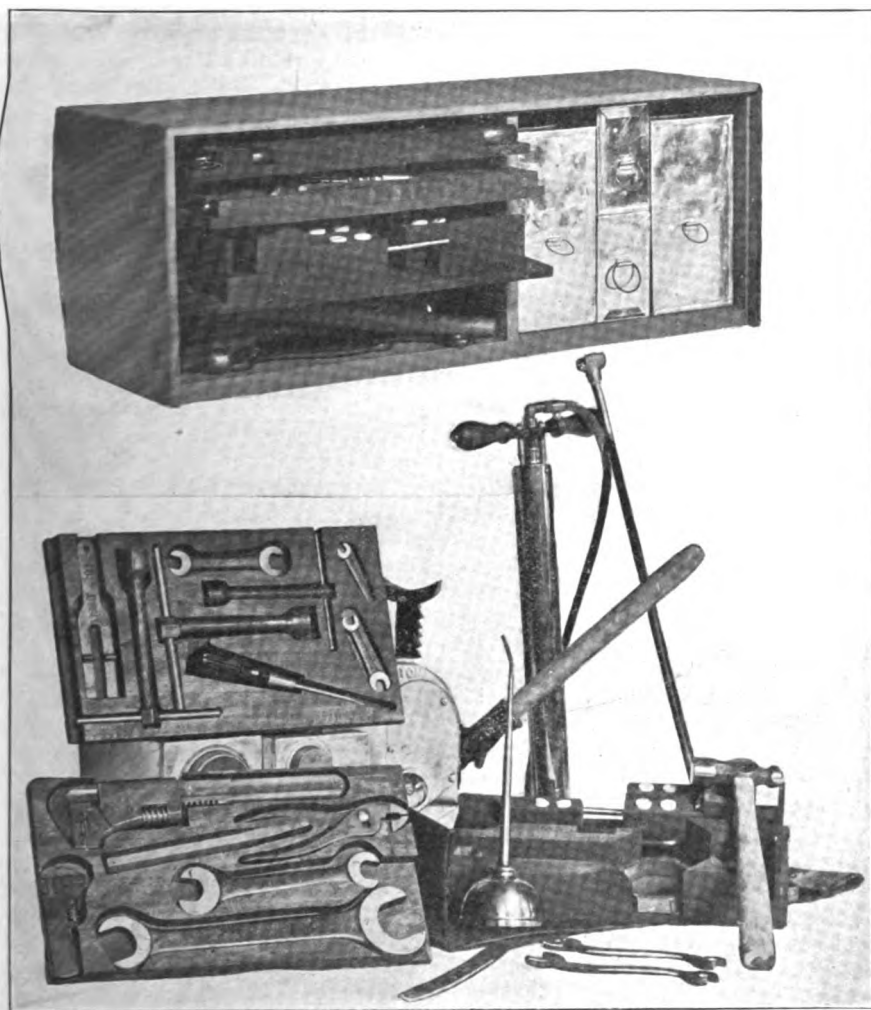
Normally the valve is held against its seat by the spring referred to, and within the limits of the amount of play permitted by the loose fit between the bushing and the spindle, it acts as an ordinary check valve, or as the Briton terms it, "a simple automatic non-return." In his role it is particularly convenient for injecting gasoline or kerosene into the cylinders, while the motor is running, as it prevents the liquid being blown out again on the upstroke of the piston before a valve of the ordinary type could be closed. When required it may be opened by direct pressure, but on the other hand, it may be set so that the latter has no effect. By means of the lever, the valve may be opened positively and left open indefinitely as the pitch of the thread is such as to prevent any pressure behind the valve from closing it automatically under these conditions.

Another feature is the facility with which the valve may be ground in, the play between the threads permitting a partial rotation of the valve while on its seat.

TOOLS AND TOOL CARRYING

Complement Supplied with One Car and the Provision for Stowage.

Like a small cruising yacht, the modern motor car requires the expense of a good deal of thought in arranging for the proper and economical disposal of the tools and spare parts which are essential to its care, so that they shall at all times be accessible



when needed, and yet shall not interfere with the comfort and convenience of the passengers or driver. Unlike its predecessor of a year or two ago, the present day car exhibits as a rule considerable nicety in the stowage of its equipment, and indeed, many of them are worked out with a degree of care and elaboration which well repays the makers in the end, even though the labor is not directly conducive to engine efficiency, nor to smooth running on the road. An example of the care with which this secondary refinement has been carried out in the 1906 types of Locomobile cars, is here illustrated, the neat disposal of all the essentials being well shown.

In the picture showing the tool case as it is mounted on the car, it will be seen that there are three trays with a compartment

underneath, and at the right, a compartment for the lubricant, two of the four cans being used for engine oil and transmission compound, respectively, and the others for hard and soft grease.

In the second illustration in which the trays are shown removed, the manner in which the wood is fashioned to conform to the shape of the tools and parts is made plain. The provision of a separate place for each tool, not simply avoids the confusion and attendant annoyance of the old-

time tool kit, but also serves to protect the articles themselves from injury due to jolting when on the road.

In the regular equipment are included such extras as a jack and tire pump, in addition to the regular assortment of tools and spare parts, and one or two special tools which are found useful in caring for the machine, as for instance, the long pet cock key with which the cocks in the engine base may be opened from the side of the car without the necessity of the operator's crawling underneath in order to secure the proper oil level in the crank pit. All the components are of the best stock obtainable and the selection is made with a view to securing what is essential without in the least encumbering the car with needless weight or useless dunnage.

CLERK ON GAS TURBINES

Goes Deeply into the Subject and then Delivers an Unfavorable Opinion.

Although the gas turbine has been a subject for considerable discussion for several years and has attracted a good deal of attention as a possibility, its actual status has been unknown to the average man, whose attention generally speaking, would only be called to it when presented at the hands of one whose faith in its practicability was perhaps tempered in a measure by his own self-confidence. Indeed, up to the present time, there has been scarcely a single effort to sum up the subject from an impartial standpoint, and to consider it in a thoroughly conservative light. The following extracts from a lecture recently delivered by Dugald Clerk, than whom none is better posted on gas engine therodynamics, completely covers the subject from the theoretical point of view, and practically delivers a knockout to the idea that motors of the type in question can be made to succeed commercially at this stage of the development of the mechanical arts. The full text of the address is given in a recent issue of the Scientific American Supplement:

"The wonderful success obtained by the distinguished engineer, the Hon. C. A. Parsons, and his many able followers, with the steam turbine in its various forms," says Mr. Clerk, "has naturally attracted the attention of engineers to the apparently analogous problem of the internal combustion turbine. Accordingly, much mathematical and engineering ability has been recently devoted to the subject—so far, I am sorry to say, without concrete result. In this subject, as yet, the dreams of the theorist obstinately decline to realize themselves in tangible iron and steel. I have not been able to find any gas turbine in a state of effective rotation doing useful work, although I have noted many statements in the press to the effect that some wonderful German, French or Italian gas turbine had worked and was about to relegate the ordinary cylinder and piston gas engine to the museum, with which many engineers used to threaten the steam engine. One gas turbine only has really rotated within my own direct knowledge. It was designed by Mr. F. W. Lanchester, of Birmingham, to operate with the exhaust gases from one of the petrol engines used in his well-known motor cars. He assured me a few days ago that it really rotated at a high speed, and made a loud shrieking noise, but only gave, he said, a total brake-horsepower equal to that capable of being evolved by two blue-bottle flies. This power he did not consider to be satisfactory.

"Speaking seriously, it does seem remarkable that so much interest should be taken by so many able men, without any sort of result in practice. It appears to me that

most of those who have written on gas turbines, and have even designed and patented them, have given too little weight to certain differences between the steam and internal combustion engine problems. Many, indeed, have assumed that the solution of the gas turbine problem is the easier of the two, and that few difficulties exist which have not already been met and conquered by Mr. Parsons in the steam turbine. Many distinguished men have been of this opinion, and even Mr. Parsons himself, so early as his first turbine patent, appears to have been of the opinion that the hot gas or internal combustion turbine presented practically the same problem as the steam turbine.

"In most of the recent discussions upon the gas-turbine problems, it has been recognized that the temperatures possible in the cylinder gas engine are impossible for the gas turbine. It has been fully proved by many investigators, including myself, that the temperatures quite common in the ordinary gas engine practice range as high as 2,000 deg. C., although in the best practice for the most economical results, 1,500 deg. C. or 1,600 deg. C. appears to be an upper limit. If one realizes what the temperature 2,000 degrees C. means, it becomes very evident that no turbine constructed either on the lines of Parsons or Laval could possibly be made to work with continuous supply of such gases; 2,000 deg. C. is considerably over the melting point of platinum. It is much higher than the temperature at which cast-iron flows from the crucible, or, indeed, the temperature of the interior of the blast furnace itself. Any blades of iron, steel, or, in fact, of any other material, even fire-brick itself, become fluid or semi-fluid at this temperature. It is obviously hopeless, therefore, to attempt, in the gas turbine, temperatures which are quite feasible in the cylinder engine. This fact, as I have said, is generally recognized. It is accordingly, said, by those who take a favorable view of the gas turbine, that it is necessary to supply the turbine with gases at a much lower temperature. Mr. R. M. Neilson fixes the temperature of 700 deg. C. as one which steel-turbine blades would probably stand, without too rapid deterioration. I fear that on this point I must differ from him, because, in my experience, oxidation of steel, and even iron, is a fairly rapid process at this temperature.

"Seeing the impossibility of constructing a turbine with materials to stand a high temperature, many have proposed to convert high temperature into kinetic energy, so that instead of having work stored up in the gas in the form of heat, the heat shall disappear, and the energy of the heat transformed into motion of the gaseous particles at a high velocity. Such proposals, then, include the compressing of a gaseous mixture to, say, 50 pounds or 60 pounds above atmosphere, the igniting of that mixture within a combustion chamber at constant pressure, and the expansion of the mixture through an expanding jet of the

Laval type, so as to drop the temperature and obtain its equivalent in kinetic energy or velocity of the gaseous particles. The rapidly-moving particles at the relatively low pressure and temperature are then allowed to impinge upon rapidly-rotating blades of sickle configuration, and they are supposed to give up their energy of motion to those blades, and so expend work upon the turbine. This appears to be the most feasible of all the gas turbine proposals, so I will proceed to examine it a little more minutely.

"Success by this cycle of operations requires: (1) A rotary or turbine compressor of high relative efficiency. (2) An expanding nozzle which shall insure that free expansion is quantitatively equivalent to adiabatic expansion behind a piston. (3) A rotating turbine of such construction as to secure very high efficiency of transformation of kinetic energy of the moving gas into effective work available at the turbine shaft."

Mr. Clerk then proceeds to discuss a theoretical cycle for the gas turbine, basing his assumptions upon results which have been worked out in steam turbine practice, and arriving at the conclusions that, (1) turbine compression must be resorted to if the maximum possible efficiency is to be attained, (2) that by means of a suitable expansion nozzle, the temperature of the gasses may be lowered to an equable degree, but that, (3) unless the proper contour is adopted for the blades, the temperature will again be raised as a result of the molecular disturbance of the gasses in impinging against them. Working along this line then, he evolves a possible theoretical efficiency as follows, disregarding, of course, all losses due to conduction, radiation, etc., and treating of the purely ideal engine.

"To produce an efficient gas turbine, therefore, on the favorite cycle so much discussed recently," he says, "it is necessary first to have, as I have said, a very efficient conversion when the moving gases strike the turbine blades. Using the numbers I have suggested, of 90 per cent. efficiency of compression, 90 per cent. efficiency of nozzle expansion, and 80 per cent. efficiency of conversion in turbine, we have, with a cycle having negative work equal to 0.4, the following efficiencies: To get 0.4 of work in compression, we shall require 0.445 of work put into the compression. On expanding in the nozzle we shall obtain 0.9 only of the total energy of the flame gasses in the shape of kinetic energy, and of that 0.9 we shall only get 0.8 returned in the shape of available work by the turbine part. That is, we shall get a total work from the turbine of 0.72, and deducting the negative work 0.72 — 0.445 x 0.275—that is from a cycle which would give us 0.6 in work, we shall only get 0.275, or about 22 per cent. The practical efficiency of an engine of this kind will only be 22 per cent., even assuming the high efficiencies of compression and jet expansion which I have mentioned. In my view, no such

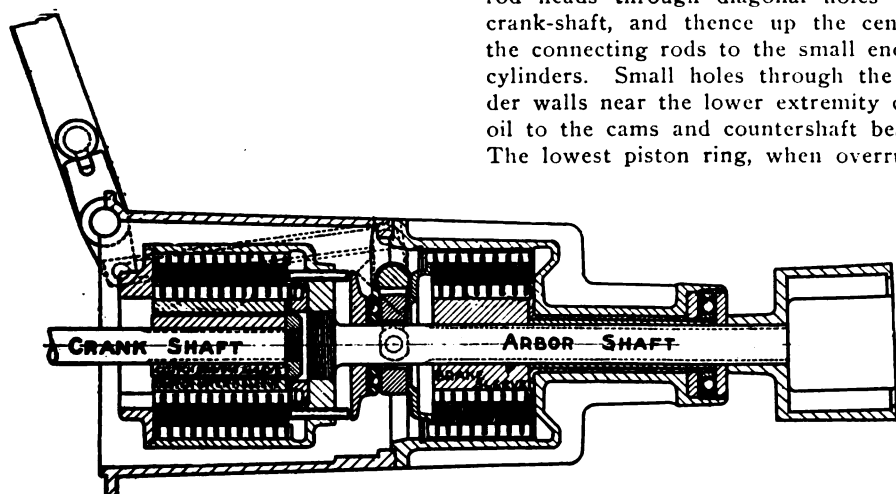
efficiencies of compression or jet expansion are at present known, and accordingly there appears no likelihood of the production of any gas turbine which can rival the reciprocating gas engine in efficiency and in economy. To produce such a turbine requires the solution of three problems: (1) An efficient turbine compressor, comparable in efficiency with cylinder compression. (2) An efficient nozzle expander with a higher efficiency than 90 per cent. (3) An efficiency of conversion of kinetic energy of the moving gases into work delivered at the turbine spindle of greater than 80 per cent. Either these problems must be satisfactorily solved or else new materials discovered which will stand temperatures which at present melt fire-brick. The outlook, I fear, is not hopeful. This thermal efficiency of 22 per cent assumes no losses in the combustion chamber due to heat conduction, and no losses in the turbine itself from the same cause. Considering the losses in gas engine cylinders of small size, it would not be too much to allow in a turbine a heat flow of at least 25 per cent. This, of course, reduces the efficiency from 22 per cent to 16.5. In arriving at this figure, I have assumed that no greater loss would be incurred from heat flow in the turbine than in the cylinder engine; but even with reduced temperatures when striking the turbine, the very fact of requiring a reservoir for combustion to operate, and the forcing of the whole of the hot products through a relatively small nozzle, necessarily means greater loss than I have assumed as taking place.

"Assuming, however, no more loss than I have given, an engine with an efficiency of only 16½ per cent of the total heat given to it would not compete with internal combustion motors of existing construction. It may be said that the advantage of continuous rotation is so great that even at this low efficiency the gas turbine would be successful. Personally, I doubt it very much, because the mechanical difficulties with gas turbines would be much greater than the mechanical difficulties of the steam turbine. No doubt if a plentiful supply of relatively low temperature gases under considerable pressures could be obtained, these gases might with advantage be expanded in a nozzle and used to operate a turbine. To carry this idea into effect has already been attempted, as I have said, by Mr. Lanchester, and there is some hope of operating in this way. I fear, however, that the temperature of the gases in the exhaust in the gas engine are too high as they stand to be so used. Gases, however, from an exhaust or air supercompression engine, such as I have lately been working with, could no doubt, give considerable efficiencies in turbines. I do not see, however, any solution of the gas turbine problem here, because the amount of energy available for the turbine after the gases leave the gas engine is too small for consideration in connection with any really high-powered machines.

SOME STRIKING DEPARTURES

English Car that Embodies Ingenious Innovations—How they are Applied.

Standardization is becoming such a potent factor in motor design that it is now the exception, rather than the rule, to find instances in which an entire system of original design has been adhered to through-



LANCHESTER COMBINED MULTIPLE DISC, CLUTCH AND BRAKE.

out. One of these that may be cited, however, is the New Lanchester of English manufacture, and, leaving out of consideration the question as to whether advantages are gained thereby or not, it possesses many features that are of general interest.

It is of the usual four cylinder type, which is one of the very few features it possesses in common with others. In the first place, the valves are arranged horizontally and are mechanically operated by means of vertical levers, enclosed in cam boxes so that the cams and the portions of the levers on which they operate are always immersed in oil. Flat instead of the usual helical springs are employed to return the valves to their seats, thus effecting a considerable saving in the weight of the moving parts, and obtaining in consequence a valve motion that is very silent, even at high speeds. The inlet exhaust and circulating water connection are disposed parallel to each another along the top of the cylinders.

There is a separate throttle to each inlet valve, these being of the ordinary butterfly valve type. They are linked together, and opened or closed simultaneously by the centrifugal governor, or by means of a foot accelerator attached to the footboard.

Another striking feature is the incorporation of the magneto generator with the fly-wheel—something that has been done in this country by individual experimenters, but has never attained to the dignity of becoming a part of the standard equipment of a car. The fly-wheel is placed at the forward end of the engine, while in a case integral with that of the crank case of the motor

itself, are the clutch, main brake and change speed gears. This arrangement insures positive alignment as well as avoiding the necessity of a universal joint between the clutch and gear-box—a feature that is coming into more general use.

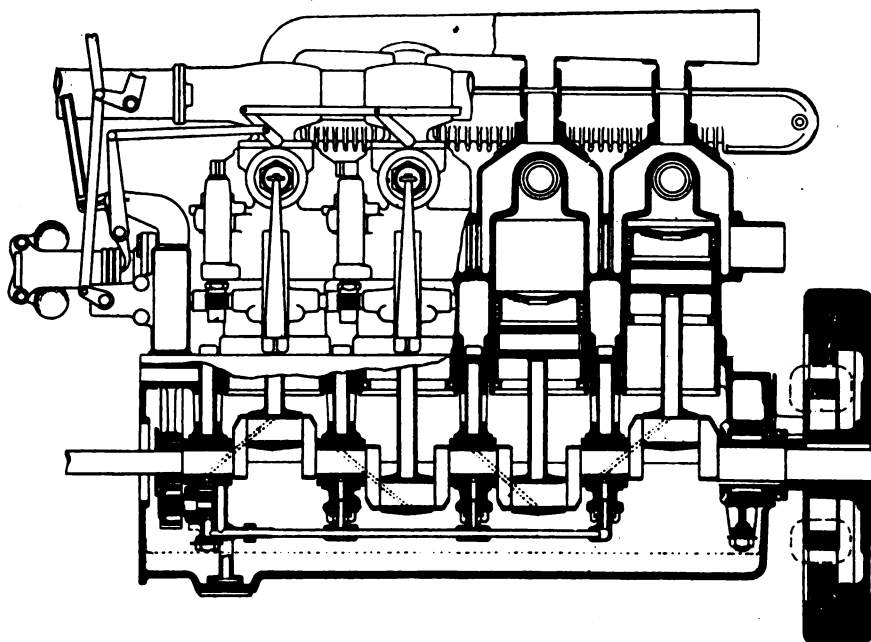
The oil pump is placed inside the crank case at the left side of the motor, and delivers the oil into a tube leading longitudinally with branches running to each main bearing. The oil flows to the connecting rod heads through diagonal holes in the crank-shaft, and thence up the center of the connecting rods to the small ends and cylinders. Small holes through the cylinder walls near the lower extremity convey oil to the cams and countershaft bearings. The lowest piston ring, when overrunning

two forward speeds and one reverse on the epicyclic principle. The forward speeds are the low and compound, or second, speed, and each gear is brought into action by applying a brake to a drum carrying one of the elements of the epicyclic train.

The clutch case contains the high speed gear, which gives a direct drive through a Weston type of clutch composed of several steel discs, these discs being mounted alternately on a sleeve carried on the motor crankshaft, and in a box attached to the arborshaft. The brake box contains rings similar to those used in the clutch, the difference being that the inner or internal rings are carried to the arborshaft, and the external rings are mounted in grooves in the brake box casting, and therefore cannot revolve.

The clutch and brake are actuated by means of one lever, operated on the outside by a link connected to the hand lever, and operating within the clutch case on the clutch in the forward direction, or on the brake in the backward direction.

It will be seen from Fig. 2 that the clutch-actuating lever carries on trunnions a thrust sector, which through a ball bearing acts on a thrust ring and the clutch pins. A forward movement of this sector will depress the clutch pins and clamp the clutch discs together. In a similar way the



LANCHESTER ENGINE.

this hole, causes oil to be blown up the tube and supplies ample lubrication for these vertical shafts. The arrangement of the various essentials of the motor itself as described will be clear upon reference to the vertical longitudinal elevation shown by the accompanying illustration.

The countershaft box consists of three portions—the change-speed box, the clutch case and the brake box.

The change-speed gear box is attached direct to the rear end of the crank case, as previously described. This box contains

sector, if moved backward, acts on the brake discs, but in this case there is no necessity for a ball thrust, as the parts operated on do not revolve.

At the rearmost end of the brake box is arranged a counter thrust for the main clutch, and the arbor-shaft also carries the universal coupling for the propeller shaft. This coupling the makers prefer to term the "driving pot." The coupling connects the propeller shaft to the worm-shaft, and is capable of sliding telescopically, as well as having universal radial movement.

France as a Field for Small Cars.

"In a country like this there is an excellent field for the sale of American built automobiles, particularly of the smaller variety, such as runabouts or small tonneaux," writes United States Consul Goldschmid, from Nantes, France, in commenting upon the outlook for American manufacturers of motor vehicles in that country. "The reason for this is that the French manufacturer does not produce machines that will compare with American machines in general handiness, price, lightness and elegance. The machine for the middle class, the business men, for the man of moderate means or income has been neglected by the French manufacturer, who has catered to the rich to the practical exclusion of the less fortunate but more numerous man of smaller fortune. It is in this line of trade that the American manufacturer may reap a harvest if he goes about it in an intelligent way.

"I think that thousands of American machines could be sold here annually if this business received the necessary attention. In order to obtain this result, I would suggest that a certain number of American manufacturers club together and establish agencies in various parts of the country. Such agencies should have show rooms or garages for a number of American machines; should be provided with serious and hard-working managers; should have workshops where the necessary repairs could be well and quickly made, and should have constantly on hand a full supply of the different parts of the machines so that broken or damaged parts could be immediately replaced. In speaking with a local dealer in automobiles, I was told that one of the principal obstacles to the importation of American automobiles was the impossibility for quick repairs, due to the distance from which duplicate parts would have to be sent, and the consequent dissatisfaction of the owner of the machine. As the class of customers to be reached would not represent the wealthiest, a certain credit system might be established, and machines might be sold to many reliable people who can not always afford to pay cash for a machine. This class includes the smaller business men, professional men, such as doctors, and many others, who would buy them for pleasure vehicles. Such machines could also be sold as auxiliaries to the wealthier owners of expensive machines,

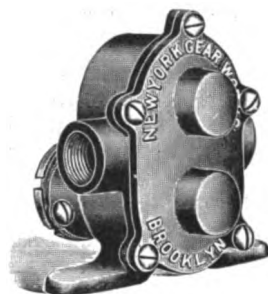
Oils the Chain all the While.

On one of the foreign cars this year is to be seen a device for lubricating the driving chains continuously while the vehicle is in motion. It consists of a pair of feed pipes of small bore which are lead, one to either side to a point just over the lower side of the chain, and directly behind the driving sprocket. By opening a valve conveniently located, the driver may feed a proper amount of lubricant on to the chain while the machine is running. Unfortunately, however, no provision is made for cleaning

off the superfluous dirt which the fresh oil is certain to pick up from the road, and on this account the expedient would seem to be one of doubtful virtue.

Improvement in Circulating Pump.

To the uninitiated it would seem that there is little or no room for improvement in the construction of so simple an auxiliary to the motor as the geared circulating pump, nevertheless each year sees something new in this line put upon the market, which embodies features which make distinctly for the betterment of the device. One of the newest of these is being exploited by the New York Gear Works, of



56-58 Greenpoint avenue, Brooklyn, N. Y., manufacturers of the Ball Improved Transmission Gear. It is made entirely of bronze, and is non-corrosive. All bearings are lined with anti-friction metal, which greatly increases the life and efficiency of the device.

A very notable feature in its construction, and one which is strongly dwelt upon by the makers, is that the gears and shafts are made integral, which does away with all keys and pins, and which, aside from eliminating the liability of failure of these fastenings, prevents any possible fault in action through the rusting of iron or steel parts. The pump is designed to run at about six hundred revolutions per minute, and is tapped for half-inch piping on both sides. It weighs only about five pounds.

Dry Subject Interestingly Treated.

If there is any catalogue in connection with the production of the motor car which naturally would seem to come under the classification of the dry as dust, it is one dealing solely with the steels which go into its structure. For however interesting the finished product may be to the layman, the raw material possesses as a rule, little or no attraction for him. By dint of clever ingenuity in its making, the Carpenter Steel Company, of Reading, Pa., has succeeded in reversing the precedent, and has produced a catalogue which is filled from cover to cover with a mass of data and illustration which is of natural interest even to one who has but the vaguest conception of the vital importance of its subject matter. In addition to a complete list of the metals produced for the various specific uses of motor car construction, together with the guaranteed strength, there are given numerous results of tests upon them, giving values of the elastic limit and ten-

sile strength ranging from 185,400 and 269,200 pounds down to 46,300 and 74,500 pounds, according to the purposes for which the metals have been compounded. In addition to this, the brochure is illuminated with a series of cuts of test pieces showing the effects of the tests upon them, and several other subjects as well, are depicted, including a half-tone series illustrative of the evolution of a forty horsepower crank shaft.

Crude System of Air Control.

Apropos of the demonstration at the recent New York Show, of the Northern car fitted with a complete system of air control which was extended even to the manipulation of the gears, the proposed system of an English inventor, is of the same nature, though so crude as to be in no wise comparable with it in point of probable utility. In a word, the idea, which is another attempt to secure an absolute control of the car by means of compressed air, involves the use of a multi-cylinder compressor which is to be used by turns as a compressor for the double purpose of retarding the motion of the machine, and as a motor for starting the regular prime mover, which is supposed to be a gasoline engine.

A regulating valve would be mounted on the steering wheel, by means of which the driver would control the inlet from the compressor to the storage tank, which would be fitted with a safety valve to safeguard it at a certain maximum pressure. Thus, to decrease the speed of the machine, the clutch having been thrown out, this valve would be closed until the resistance offered to the action of the compressor would be sufficient to bring it to a stop. This retarding effect could be very nicely modulated by the lever and the amount of its effort could be brought from zero to its full value in an instant of time.

In order to start the motor, it would be simply necessary to throw the crank shaft of the compressor into connection with the crank shaft of the motor and to alter the distribution of the valves in such a way as to convert it into a compressed air motor for the time being. The principle of the thing sounds decidedly simple and attractive, but some idea of what is in the inventor's mind is brought out when he casually remarks that the amount of space taken up by the compressor should not exceed 24 by 18 by 12 inches, and that of the tank, not over 24 by 10 inches, the affair being circular. Also, he suggests that for starting the motor, the best point of attachment would be at the fly-wheel, while to secure the best braking effect, the differential drum, or the point of application of the ordinary countershaft brake would be most suitable.

"The A. B. C. of Electricity" will aid you in understanding many things about motors that may now seem hard of understanding. Price, 50c. The Motor World Publishing Co., 154 Nassau Street, New York City. ***

ABOUT WATER COOLING

Comprehensive Review of Existing Systems —The Ideal Radiator Outlined.

Although premised by a statement which is ably disproven by current American practice, the paper recently presented before the Graduates' Association of the Institute of Mechanical Engineers, of London, by F. Edgar Bennet, which is here excerpted somewhat fully, presents a brief and rather comprehensive review of the subject of water cooling, in thoroughly tangible form.

"The necessity for coolers arises from the fact that air-cooling becomes impracticable with any but small cylinders, even with forced draught," is Mr. Bennet's somewhat startling introductory assertion. "Water cooling had to be adopted," he continues, "and means found to cool the water efficiently. The following divisions embrace almost every known type of cooler:

"1. In which a tube or tubes carry the water and air circulates outside: (a) Coil radiators, with or without gills or fins consisting of one or more tubes, the tubes either flat, round or irregular section; (b) a top and bottom or two side water tanks or main pipes between which tubes pass.

"2. In which tubes form air passages and water circulates around them: (a) The honeycomb (various types); (b) tubular (tube plate back and front).

"3. Diaphragm, in which a plate increases the length of the travel of the water.

"4. Series of plates connected to distributing and collecting boxes (water tanks) at each end.

"5. Series of plates interconnected by a system of washers. Example: The Fouche and Lanchester radiators.

"6. Rotary. Driven either mechanically or by means of the water pressure.

"The gilled tube radiator in its various forms is, on the whole, the most generally used at the present time. At first it had the field almost to itself, the designers of cars being apparently too busy rectifying mechanical faults to bother about radiators. There was really no reason why they should do so, the coiled gilled tube as then used being a most efficient cooler. Independent water tanks were general. Down to 1901-2 there was little change. The advent of the Mercedes radiator (honeycomb) caused many manufacturers to discard the gilled tube in its favor. The gilled tube radiator is now almost always surrounded by a case; in France it is called a *Cloisonné* radiator. In some cases wire is wound around instead of gills, as in the Kitchen and Clarkson radiators; in others a strip of metal, first corrugated, is wound on the tubes. Another form is that in which the gills themselves

form the tubes, the collar of one being slipped into the next, and the whole dipped in solder. Smaller or flattened tubes have greater efficiency, because there is no appreciable core of water in the tube. Radiators have been made with hollow gills and also fitted with deflecting diaphragms to spread the water over the whole surface.

"The methods of attaching the gills vary. The following are the most usual: (1) Tinning the tube and gills and subsequently sweating them together; (2) soldering on without tinning previously; (3) relying on mere contact of the collars; (4) introducing the collar of one gill into the next, forming thus a wedge contact; (5) making the gills continuous, so that they are mutually supporting.

"The usual allowance of gilled tube per horse-power is about three square feet surface with a fan and twice that amount without. The gill surface should be at least four times but not more than six times the tube surface, as the receptive is far in excess of the emissive capacity of the tube under the conditions in which radiators work.

"A radiator has recently been constructed which depends upon an old principle, viz., utilizing the latent heat of a very volatile liquid, such as ether, to transfer the heat of the water to the cooling tubes. There is no top water tank; the tubes are screwed into and partly immersed in a bottom water tank and are sealed, and the air exhausted after being partly filled with the volatile spirit. The spirit is evaporated by the water and condensed by the air-cooled tubes. It is obvious that a good quantity of heat passes along each tube from the tank and is dissipated by the gills, and the author thinks this is the principal cause of the efficiency of the apparatus.

"The Rothwell car, using thermo-syphon circulation, has a radiator consisting of top and bottom tanks connected by small coils about $\frac{3}{4}$ -inch over and of $\frac{1}{4}$ -inch copper pipe—a similar construction to Kircaldy's Compactum condenser. Undoubtedly this would be most efficient, but the coils appeared to be too closely packed; in fact, looking at the front of the radiator one wonders how the air passed through it at all. But the shape of the coils undoubtedly reduces the friction of the air in its passage.

"Devices for breaking up the core of water in vertical tube radiators are only to a small extent used. They include: (1) Knotted wire; (2) a twisted piece of metal; (3) an internal displacement tube with wire wound on, leaving an annular concentric space; (4) a Field tube, Wheeler condenser style (the water passes down the inner tube and then up the annulus); (5) an inner tube through which air passes; this is undoubtedly the most practical.

"The honeycomb or cellular radiator is size for size most efficient; in fact, sometimes too efficient. As it was originally made the tubes were fitted into tube plates, but afterwards other methods were intro-

duced, i. e., separating the tubes by a wire mesh, expanding the ends, fluting them in the centre, etc. A "block" of tubes is assembled and dipped in a solder bath, the casing being afterwards added. The usual sizes of tubes are $\frac{1}{4}$ -inch square, $\frac{3}{8}$ -inch square, and equivalent sizes in other shapes—triangular, hexagonal, etc. The water either passes between the tubes vertically or is made to travel in a zigzag or sinuous path by baffles. Square tubes are placed diagonally, horizontally, or dodged. The former is the best. The water spaces are irregular in some forms, but the average varies from 1-32 inch to 1-16 inch, generally the former. A fan is fitted behind the radiator or in the engine fly-wheel, usually the former. It was at first commonly fixed to the radiator by a bolt passing through, but is now usually attached to a bracket on the engine. Driving is by a belt or chain. Fans are almost all of two types, of which the first largely predominates—propeller and centrifugal—and answers the same purpose to an extent as the old water tank. When a belt-driven fan is used, overheating may often be traced to slipping. At the moment a honeycomb radiator, generally speaking, helps to sell a car. Thus imitation honeycombs are much in evidence. The thickness of honeycomb tubes varies from 0.006 inch to 0.012 inch. They have to be made of the best brass; both solid and Triblet drawn qualities are used. Copper "shells" have been drawn, but are not very satisfactory, and are expensive. The thickness of honeycomb tubes within the limits specified has very little effect on efficiency.

"The radiators of Type 4 are principally represented by corrugated or flat plates either rebated or with intermediate strips to form the waterway. This type can be made to stimulate the honeycomb appearance without its cost, and is very little if at all less efficient than that type. The plates are almost always fixed vertically, either adjacent plates being drawn together and folded and soldered, or distance pieces inserted and soldered to each plate. Very thin plates have been used as thin as 0.005 inch. A strong form is made by forming flat corrugations out of the strip of metal in such a manner as to give a "square tube" honeycomb appearance when the plates are placed together in series.

"Circulation of cooling water is by three methods: (1) Pump, (2) convection (thermo-syphon), (3) revolving the cooler itself. Rotary radiators find little favor. A very ingenious one was shown at the Agricultural Hall early this year. The water entered and left through trunnion joints. The center of the radiator was in the form of a fan with hollow blades. The water was driven down one set of blades and returned up the other set, which was inclined rearwardly. The water also passed through a honeycomb ring casing. The fan drove the air through the honeycomb. The Cannstatt Daimler cars in 1896 had the water introduced by a channelled fly-

wheel, from which it was driven into a pipe by centrifugal force and so to the storage tank. A system of flat revolving plates has been thought out, but not been used to any large extent.

"A few words concerning pumps may not be out of place. There are four principal types used. Popularity is in the order named: (1) Centrifugal and propeller, (2) gear, (3) eccentric, (4) reciprocating, and (5) semi-rotary (very little used).

The gear pump is not so popular as at one time. It is subject to a great loss of efficiency due to wear, and then becomes noisy. The Albany pump takes advantage of the notion of cutting grooves in pump buckets, long practised; grooves being cut in the tops of the teeth and down the sides. Water fills these spaces and forms cushions. It is undoubtedly a great improvement. Gear pumps do not permit of thermo-syphon circulation or they break down unless a by-pass (opened and closed at will) is fitted. Centrifugal pumps do not possess the above defect. They work very silently, and can be designed to perform their work in a very efficient manner. Moreover, they do not, like the gear pumps, wear to any great extent and lose efficiency. The type of pump should be chosen which will best suit the radiator. Where the passages are long and tortuous and of restricted section a gear pump of improved form is calculated to give the best results. Otherwise the centrifugal seems the most desirable form. The thermo-syphon system is coming largely into favor. More surface is needed and a good quantity of water must be carried above the engine, but these requirements are easily fulfilled. It is no trouble, neither does it cost anything to put a gallon of water in the radiator every day or so. There should be a good body of water above the engine. Pipes should be of ample diameter.

"In thermo-syphon systems these should be of ample size, and should increase towards the radiator. Air locks should be carefully avoided and expansion carefully guarded against by rubber connections or bends. With pump circulation the diameter of the pipes should not be less than the pump suction and delivery. A tap or plug should be fixed at the lowest point in the system to drain it out in cold weather. These are usually riveted to the sides of the radiator, generally outside but sometimes inside. The Syker cars have ball joint brackets designed to neutralize vibration and frame distortion. Others have simple hinges which are almost as effective. All the above remarks apply to radiators fixed in front of the bonnet.

"Fillers are made in a great variety of sizes and styles from about one inch to three inches in diameter, and in height from half an inch to over four inches. Two inches diameter by two and a half inches high is a good mean. A very ingenious filler is that used on Panhard cars. A centre spindle operates rods held in position by springs. These rods engage with a ring

in the filled body, and the lifting of a knob on the centre rod withdraws them and allows the cap to be removed. Vulcanite and woodite caps, generally fluted and with metal screws, find some favor. The author noted at the recent show many filler caps with about three-quarters of an inch of fine thread—too much altogether. Only a few threads are necessary, and those not finer than about eleven to one inch.

"Incrustation can be avoided by using a scale removing fluid. There is no doubt that radiators of the coil type often become encrusted and thus lose efficiency. Honeycomb radiators have been taken to pieces after a year's use, and found almost as clean inside as when they were first put together. When scale-removing fluids are employed the radiator should be washed down occasionally to remove the flakes of lime, etc., which accumulate. Oil greatly reduces efficiency, and should be carefully excluded. Weak hydrochloric acid, say ten per cent., will to a great extent remove scale if left a while in the radiator, but it should be well washed out afterwards with an alkaline solution.

"Like many other things in a motor car, the radiator is a compromise. Even the best radiators sometimes get over-hot; thus radiators have to be designed to effectively cool the jacket water under exceptional conditions, with the result that the water is, generally speaking, returned to the engine too cold. When the temperature is maintained at an unnecessarily low degree to save a half a gallon of water a day at the expense of loss of power due to that required by the fan, the conditions are certainly not ideal.

"It has been found that the angle of the radiator tubes to the wind affects the flow of air. Messrs. Grouvelle and Arquembourg have experimented, and find that the incoming angle should be about thirty degrees and the outgoing about seven degrees. The fall of temperature in a radiator is usually from 30° to 50°F. The amount of water passed through per horsepower varies generally from about ten to fifteen gallons per hour. The proportion of heat taken up by the jacket is usually twenty-five to thirty-five per cent. of the total available.

"The ideal radiator will (1) present the least possible resistance to the air—(a) horizontally, (b) vertically; (2) be as simple as possible; (3) have the least number of soldered joints; (4) be that in which the greatest quantity of water passes a given spot in the shortest time; (5) will not overwork the pump; (6) have no air pockets whatever; (7) weigh the least consistent with strength; (8) be so constructed as to give readily without leakage under frame strains and vibration."

Combining Motor and Dynamo.

Few ideas have been so persistently followed as that of combining the internal combustion engine with a dynamo, on a motor car, for the purpose of eliminating

any mechanical change-speed-gear, says the Automotor Journal. Extremely limited success has, however, attended the numerous practical efforts in this direction, and naturally each succeeding year removes something of the urgency for such a system, because the enormous improvements which have taken place in the construction of motors, have tended toward that flexibility of control which is the real aim of all gasoline-electric combinations. Primarily the chief stumbling block to any such arrangement is that of weight, for the dynamo and motor weigh more than the engine itself, while accumulators, when employed, are not only heavy and bulky, but apt to increase the total weight to a prohibitive figure. When accumulators are not used, a portion of the weight is saved, but one of the most important advantages—the storage of energy—is lost also, and the system is then merely equivalent to a variable gear.

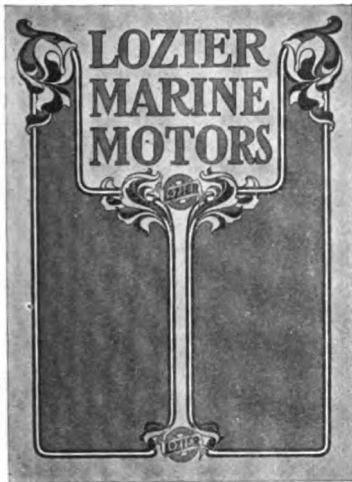
Torch that Needs no Pumping.

"Volcano" is the apt title given an improved form of gasoline torch for which is claimed the unusual advantage of dispensing with the air pump; it also maintains its own pressure constantly and permits of refilling without suspending operation. In addition to this, it dispenses with a starting cup, in place of which an ordinary lamp burner mounted on a tank and serving as the base of the torch itself is substituted. This heats the generator and maintains the pressure. According to the makers, the Volcano Torch Co., Erie, Pa., their product is the result of three years' study of the problem of providing an improved form of hand or bench torch and the "Volcano" is original from the ground up. It differs from the ordinary article in that it is the only one of its kind to employ a steel cylinder, brazed and staybolted, as well as a safety valve. This gives it a capacity to withstand pressures up to 2,000 pounds per square inch. Some idea of its power may be had from the fact that the small size will bring a four-inch milling cutter, one and one-half inches thick, to the proper temperature for dipping in eight to ten minutes.

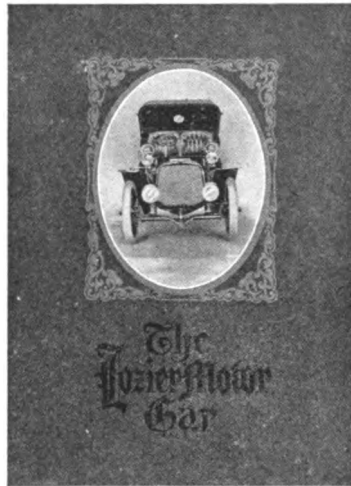
Knuckle Joint for Connecting Rod.

The very latest thing in automobile clubs is known as the Automobile Club de La Sarthe, and it has just been formed at Le Mans, with the avowed object of promoting the interests of the contest for the Grand Prix. It is about to undertake a missionary campaign of a thoroughly modern and very commendable sort, which will be opened by a series of popular lectures to be given in the public halls of the towns and villages along the line of the course. These will be garnished with moving pictures of the most recent contests of importance to the motoring world, and will include sundry recommendations to stock owners as to the advisability of keeping their cattle off the roads during the preliminary trials, and at the time of the great race itself.

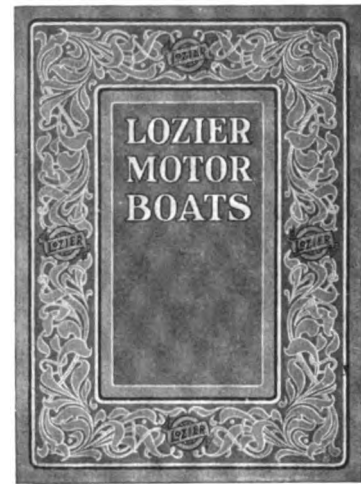
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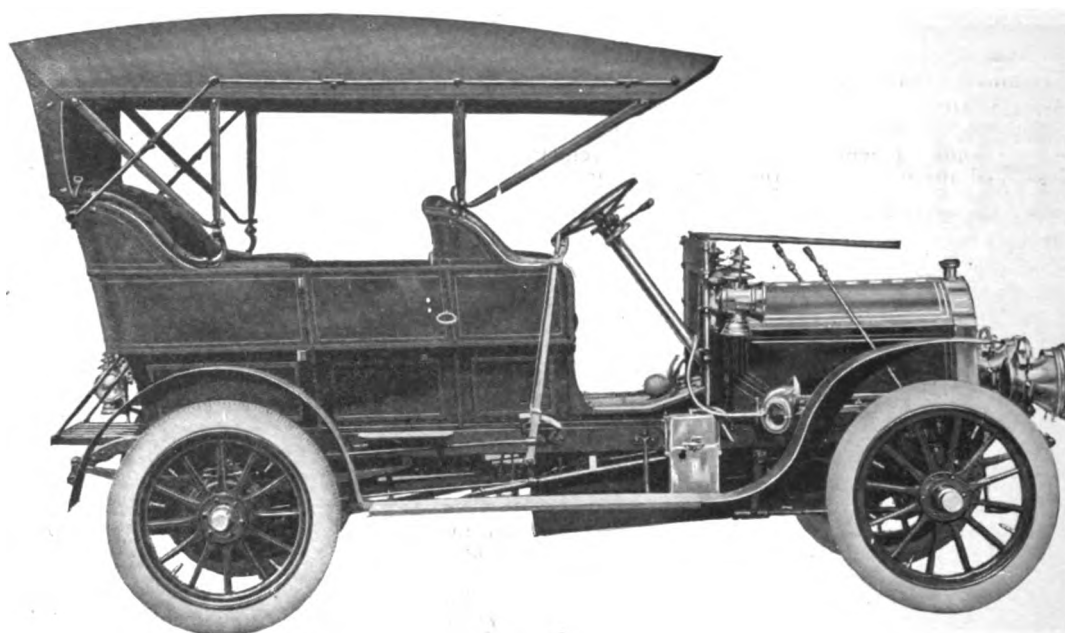


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| | Utica, N. Y.—Utica Motor Car Co. |

The Week's Patents.

811,076. Front Axle for Automobiles. Frederick C. Miller, Cincinnati, Ohio. Filed Apr. 13, 1905. Serial No. 255,276.

Claim.—1. A front axle for automobiles, consisting of a tube, the ends of which have been slotted and swaged apart to form jaws.

2. A front axle for automobiles, consisting of a tube, the ends of which have been slotted and swaged apart to form jaws, the slotted edges of the tube forming arched side walls to the jaws.

811,112. Automobile-Wheel. Earl A. Wheeler and William Heckert, Sharon, Pa.; W. W. Shilling, executor of said Earl A. Wheeler, deceased. Filed Dec. 29, 1904. Serial No. 238,766.

Claim.—1. A wheel having two separable half-rims which together constitute a complete grooved rim, an interposed ring to which said half-rims are secured, at least one of said half-rims being detachably connected to said ring, and a flexible tire fitted in said rim and attached to said ring by fastenings engaging the under portion of the tire.

811,116. Jack for Lifting and Transporting Motor Cars. Henry Adams, Tunbridge Wells, England. Filed Mar. 11, 1905. Serial No. 249,607.

Claim.—1. A jack for lifting and transporting motor-cars, carriages and the like, comprising a column, a carrier-frame supporting said column and mounted upon wheels, an axle-rest rotatably carried by said column and means enabling said column to be tilted and also restored to its normal vertical position, as set forth.

811,178. Lady's Automobile Hat. Horace A. Saks, New York, N. Y., assignor to Saks & Company, New York, N. Y., a corporation of New York. Filed Sept. 12, 1905. Serial No. 278,093.

Claim.—1. An automobile hat comprising a crown, a brim arranged to swing down at an angle thereto, and a shield attached to the crown and brim for closing the space between the crown and brim when the brim is lowered.

811,220. Multiple-Piston Explosive Engine. Charles T. Hilderbrandt, Chicago, Ill., assignor of one-half to Everett W. Brooks, Chicago, Ill. Filed Feb. 10, 1905. Serial No. 245,095.

Claim.—1. The combination with an engine cylinder having oppositely-moving twin pistons, of a driven shaft disposed laterally of the cylinder and at right angles thereto, a vertical guide mounted on one side of the cylinder, a cross-head reciprocable over said guide, pitmen connecting the outer ends of the pistons with said cross-head, and driving connections between the latter and said driven shaft, substantially as described.

811,232. Vehicle Tire. Jules Lang and August Fischer, Chicago, Ill. Filed Nov. 14, 1904. Renewed June 28, 1905. Serial No. 267,451.

Claim.—1. A vehicle-tire, comprising a tube of resilient material, a longitudinal partition subdividing the interior of said tube, and a plurality of longitudinal webs on each side of said partition and extending across the space between said partition and the opposite walls of said tube, the webs on one side of said partition lying in different planes from those on the other side, substantially as described.

811,296. Pneumatic Spring for Vehicles.

Matthew M. Howland, Providence, R. I., assignor of one-half to William W. Dunnell, Providence, R. I. Filed May 11, 1905. Serial No. 259,969.

Claim.—1. An improvement in vehicles comprising a vehicle-body, running-gear therefor including springs, pneumatic cushions, yieldable means engaging said cushions and connecting said body with said running-gear to prevent longitudinal motion on the parts and yieldable means to prevent lateral motion on the parts.

811,250. Cushion-Fork for Motor-Cycles and Other Vehicles. William G. Schaeffer, Reading, Pa., assignor to William F. Remppis, Reading, Pa. Filed May 19, 1905. Serial No. 261,103.

Claim.—1. The combination with a fork-stem having a T-shaped fork-connecting end, of a fork having a U-shaped crown which is pivoted at its spread ends to one arm of said T-shaped end and the bend of which overlies the other arm thereof and has a spring connection to the latter.

811,327. Transmission Mechanism for Motor-Cycles. Louis C. G. Rivierre, Paris, France. Filed Oct. 31, 1904. Serial No. 230,843.

Claim.—1. In a two-speed transmission, in combination, a fixed axle, a hollow spindle rotatable thereon, sprockets carried by said spindle, a hub rotatable on said spindle, a pinion carried by said spindle, planetary pinions on said hub engaging said pinion, a member rotatable on said spindle and adapted to be frictionally locked to said hub, a gear on said member meshing with said planetary pinions, and means for braking said friction member.

811,422. Friction Clutch. Albert C. Menges, Grand Rapids, Mich., assignor to William Harrison, Grand Rapids, Mich. Filed Jan. 19, 1905. Serial No. 241,843.

Claim.—1. In a friction-clutch, the combination with a case and a clutch-wheel, of a plurality of radially-movable clutch-arms, a corresponding series of removable caps forming guides for the arms and having outer angular extremities, springs held between the angular extremities of the caps and the inner extremities of the arms, radially-slidable sleeves movable in the inner extremities of the springs and through the inner ends of the arms and having auxiliary spring-controlling devices independent of the first-mentioned springs interposed between the caps and the arms, and also adjusting means for regulating the clutch-arms, and means engaging portions of the said sleeves for throwing the arms outwardly.

811,470. Sparking Device for Engines. James E. Worth and William B. Eten, Fancyhill, Va. Filed May 15, 1905. Serial No. 260,538.

Claim.—1. The combination in a sparker, of a pair of electrodes, one of which is movable, a rock-shaft carrying the movable electrode, a yielding arm connected to the rock-shaft, a second shaft, also having a yieldable arm, means for connecting the two shafts, and an operating-rod adjustable to engage one or the other of said arms.

811,490. Pneumatic Tire. James M. Elder, Indianapolis, Ind. Filed Mar. 24, 1905. Serial No. 251,868.

Claim.—1. The combination with a wheel-rim, of a pneumatic tire, side pieces adapted to extend around the sides of said tire and to conform thereto, said pieces having flanges adapted to engage the sides

of said wheel-rim and portions adapted to extend between said rim and tire, a bearing-strip arranged between said side pieces over the tread of the tire, means to secure said bearing-strip in place, means to secure said side-pieces to the wheel-rim, and means to clamp said side pieces to each other between the tire and the rim.

811,507. Automatic Air-Brake Apparatus for Automobiles. Frederick Kalisch, St. Louis, Mo., assignor of one-eighth to Geo. D. Kluegel, St. Louis, Mo. Filed Mar. 24, 1905. Serial No. 251,903.

Claim.—1. The combination with the engine of an automobile of a friction-pulley riding on the fly-wheel of the engine, an air-pump operated by the rotation of the friction-pulley, a storage-tank, a brake-cylinder, tubular connections from the storage tank to the air-pump and to the brake-cylinder, and means whereby the pressure within the storage-tank is utilized to automatically move the friction-pulley into and out of engagement with the fly-wheel of the engine; substantially as specified.

811,757. Gas Engine. Vincent G. Appel, Dayton, Ohio. Filed Dec. 5, 1904. Serial No. 235,583.

Claim.—1. In combination, vertical engine cylinders, supports therefor laterally extended beyond the engine-cylinders, an engine-crank below the top of said supports, valve-gearing above the engine-cylinders, a sheathing for the cylinders, a canopy arranged when in normal position to constitute a continuation of the sheathing and moveable to give access to the valve-gearing, and doors arranged when closed to constitute a continuation of the cylinder-sheathing disposed to overlie the laterally-extended portions of the supports.

811,809. Explosive Engine. Joseph A. Williams, Cleveland, Ohio. Filed Sept. 27, 1904. Serial No. 226,119.

Claim.—1. The combination with an explosive-engine including a cylinder and a separable stationary combustion-chamber, of means for forcing a scavenging charge of air through the same at a time when the combustion chamber is not in communication with the cylinder.

811,888. Explosive Engine. Joseph A. Williams, Cleveland, Ohio. Filed Jan. 9, 1905. Serial No. 240,139.

Claim.—1. In an explosive-engine, a cylinder, a compression-chamber, a conductor for the explosive mixture connecting the said cylinder and chamber, a valve located in said conductor near the intake opening into the cylinder through which air is admitted into the conductor and compression-chamber, a device independent of said valve for supplying fuel communicating with the conductor beyond the valve from the cylinder, whereby when air is drawn through the valve and conductor into the chamber it will become carbonized as it passes the said device, and when the mixture is admitted to the cylinder it will be preceded by air which has not been so carbonized for the purpose of expelling the exploded gases from the chamber.

811,928. Safety Starting Device for Gas-Engines. Alvin S. Johnson, Minneapolis, Minn., assignor of one-fourth to F. J. Moore, Minneapolis, Minn. Filed May 14, 1904. Serial No. 207,893.

Claim.—1. The combination, with a gas-engine crank-shaft, of an arm loosely mounted thereon, mechanism for locking said arm on said shaft when it is turned in one direction, mechanism for tripping said locking mechanism upon the reverse movement of said shaft and arm, and means for

holding said locking mechanism in its unlocked or inoperative position after being tripped, for the purpose specified.

811,955. Reversing Mechanism for Explosive-Engines. Edwin B. Robertson, East Norwalk, Conn. Filed Feb. 20, 1905. Serial No. 246,408.

Claim.—1. In an explosive engine, the combination with a shaft, a fly-wheel and spring-controlled oppositely-acting driving dogs and corresponding stop-pins on its inner surface, of an eccentric having a loosely-mounted hub, an ignition device operated by the eccentric, and a rod extending from the eccentric-hub into the path of the driving-dogs and stop-pins, substantially as described, for the purpose specified.

812,094. Starting-Crank for Engines. George B. Selden, Jr., Rochester, N. Y. Filed Jan. 30, 1905. Serial No. 243,390.

Claim.—1. The combination of a crank-shaft, a starting-clutch member revolving therewith, a starting-crank provided with a clutch member corresponding to that on the shaft, a non-rotating support, a movable lever on the support for disengaging said clutch members when said crank-shaft revolves backward, and means arranged at right angles to the axis of revolution to actuate said cam on said backward movement, as and for the purposes set forth.

812,118. Driving-Axle for Automobile Vehicles. Jules E. G. Denis and Louis M. J. De Boisse, Paris, France. Filed June 14, 1904. Serial No. 212,519.

Claim.—1. In a live axle for automobile vehicles, the combination with a central shaft having a differential gear arranged thereon and toothed disks at the extremities of said shafts, of end shafts having

internally-toothed drums meshing with said toothed disks, said end shafts also having toothed disks at their outer extremities, and of internally-toothed drums secured to the road-wheels, said road-wheel drums engaging the toothed disks upon the outer extremities of the end shafts.

812,129. Automobile. Ben E. Hervey, Spokane, Wash. Filed Aug. 15, 1905. Serial No. 274,286.

Slaim.—1. In an automobile, the combination of a supporting frame comprising relatively longitudinal bars, connected at their front by a cross-bar, spaced pairs of relatively short longitudinal bars arranged without the relatively long bars at the rear ends thereof and spaced apart therefrom, the cross-bars connecting the ends of the pairs and the relatively long bars, an axle fixed on the front ends of the relatively long bars, wheels on the ends of the axle, aligned shafts having oppositely-disposed crank-arms journaled on the pairs of bars and on the relatively long bars, and with a crank-arm on either side of said long bars, wheels on the shafts between the members of the pairs of bars, a counter-shaft journaled in front of the shafts and provided at either end with oppositely-disposed crank-arms arranged on either side of the long bars, connecting-rods between the corresponding crank-arms, a bevel-gear on the countershaft, a power-shaft journal longitudinally on the frame and a bevel-gear thereon meshing with bevel-gear on the counter-shaft.

812,143. Spring-Hub for Vehicles. William M. Leffroth, Providence, R. I., assignor of one-half to Emmett Ainley, Providence, R. I. Filed Sept. 20, 1905. Serial No. 279,218.

Claim.—1. In a yielding or resilient hub for vehicle-wheels, the combination of a

non-revoluble circular frame, a spring-pressed axle-skein movably mounted and guided therein, a plurality of ball-holders adjustably mounted in the outer periphery of said frame, a flanged revoluble ring located outside of and concentric with said frame member having its inner face provided with a peripheral groove or seat and arranged to be secured to the spokes of the wheel, and anti-friction-balls revolubly mounted in said holder members and bearing against the said grooved portion of the revoluble ring, substantially as described.

812,165. Tire. John L. Connable, Chattanooga, Tenn.; Caroline Augusta Connable, executrix of said John L. Connable, deceased, assignor of one-half to Frank L. Connable, Wilmington, Del. Filed Apr. 3, 1901. Serial No. 54,167.

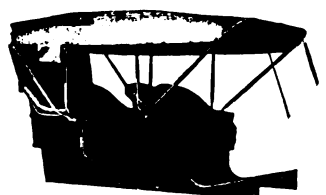
Claim.—1. In a rubber tire in combination with a rim, retaining means, a passage or passages in the tire for said retaining means, a rigid bearing-plate supported solely by its bearing in the rim and engagement with the tire and having a rigid bearing on the rim and provided with a thin, sharp projecting portion having its bearing edge extending into said passage or passages whereby said retaining means are suspended independently of the rubber tire and without pressure on the walls of said passage or passages, substantially as described.

Springfield Top
(Pat. 1895)

ALUMINUM BODIES.

Springfield Metal Body Co.,

366 Birnie Avenue,
Springfield, Mass.



PENNSYLVANIA CLINCHER

**The \$1,000
Tire Economy
Competition**

is for the mutual benefit
of maker and user.

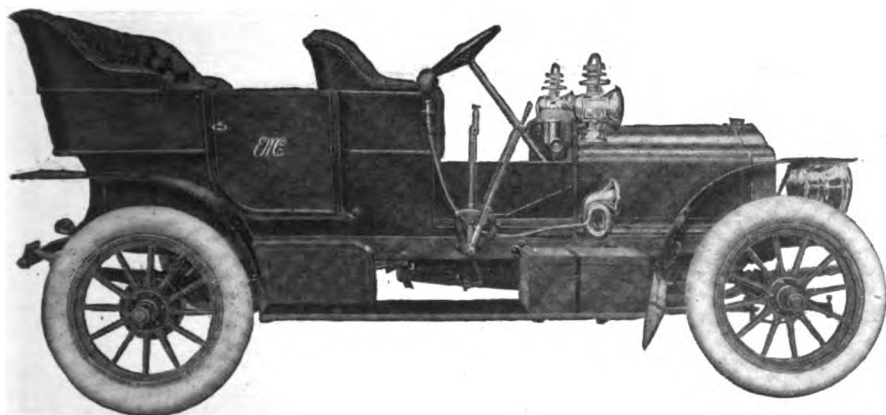


We want you to know
all about tires and how
to treat them.

We will pay for your
education.

20 per cent allowed for
old tires of any make.

PENNSYLVANIA RUBBER CO. JEANNETTE, PA.



THE WISDOM OF SIMPLICITY.

Up-keep, cost of maintenance reduced fifty per cent.

Actually fifty per cent. of moving parts done away with.

From 18 to 20 parts on every cylinder and all inlet and exhaust valves eliminated.

One, two or three cylinders may be cut out at will. Runs quietly and smoothly without jarring over rough roads and climbs steep and difficult grades without strain or effort. These are a few of the cardinal points which have made the Two-Cycle Elmore a power in the automobile world.

The difference between a two-cyc'e and the four-cycle is the difference between the strong and weak heart.

A faint heart and a weak engine are always in danger.

The two-cycle engine produces a rhythm of motion, with no interval between the impulses, which has reduced the cost of operation to a minimum.

The expansive force of one explosion is only half way through when another begins.

To understand and know a machine well it is necessary to study it.

We have special booklets explaining the two-cycle principle more clearly, which we would like to send you. Write for booklet and catalogue describing the Four-Cylinder Two-Cycle Elmore at \$2,500.00, and the Three-Cylinder Two-Cycle Elmore at \$1,500.00.

THE ELMORE MFG. COMPANY,

1104 Amanda Street, - - - CLYDE, OHIO.

Members Association of Licensed Automobile Manufacturers.

WANTS AND FOR SALE.

15 cents per line of seven words, cash with order.

In capitals. 25 cents per line.

A TEN PASSENGER wagonette; sample car, 1905-1906 model steam; price and description on application. THOMPSON AUTO CO., Olneyville Sq., Providence, R. I.

FOR SALE—Established Automobile business stock and machinery. For particulars address STANDARD WHEEL CO., Terre Haute, Indiana.

MODEL "E" 1905, two passenger Franklin, special built and finish, with speed 50 miles per hour; all metal parts nickel plated; cost \$1,800 fully equipped; has been run 1,300 miles; equipments, Goodrich tires, with Bailey tread, never punctured; Victoria top, wind shield, four Gray & Davis bullet gas lamps, Prest-o-Lite gas tank, Warner speedometer, Gabriel horn, grade meter, gasoline tank gauge and clock; car looks like new; reason for selling, have ordered six cylinder car; demonstration to prospective customer from 5 to 100 miles; lowest possible price, \$1,150. Address Post Box 448, Harrisburg, Pa.

FOR SALE—Model "B" Winton, 24-30-h.p., in fine condition, newly painted; will make bargain price to immediate buyer, as my Model "K" Winton has been delivered. Bargain, care WINTON COMPANY, 1706 Broadway, N. Y.

BULLOCK DUPLEX IGNITORS, latest pattern, fully guaranteed. We are overstocked and to make room for 1906 models will sell at one-third off regular prices. Cash with order, \$4.75 each. Discount to the trade. Address CENTRAL MOTOR-CAR SUPPLY CO., Central Trust Building, Cleveland, Ohio.

FOR SALE—One Electric Vehicle Co's five ton "Columbia" brewery truck, complete; motor and truck in good condition; battery was in use for ten months. Inspection and offers solicited. WM. J. LEMP BREWING CO., St. Louis, U. S. A.



How Are Your Batteries?

A CONNECTICUT VOLT AMMETER will tell you.

Guaranteed, and the price is right. Send for catalogue and trade discounts.

Volt Ammeter, \$8.00. Ammeter only, \$4.00

CONNECTICUT TELEPHONE and ELECTRIC CO., Inc. MERIDEN, CONN.

KNOWLEDGE IS POWER

in every walk of life.

The way to acquire Knowledge

is to keep posted and the best way to keep posted is to regularly read

THE MOTOR WORLD

Nothing of moment in the Automobile world escapes it.

It is an uncommonly valuable \$2 worth.

Rainier

The Pullman of Motor Cars

Guaranteed Free of Repairs for one year.

Good Agents wanted in unassigned territory.

THE RAINIER CO.,

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TOURING CAR

THE F. B. STEARNS CO.,
CLEVELAND, OHIO, U. S. A.

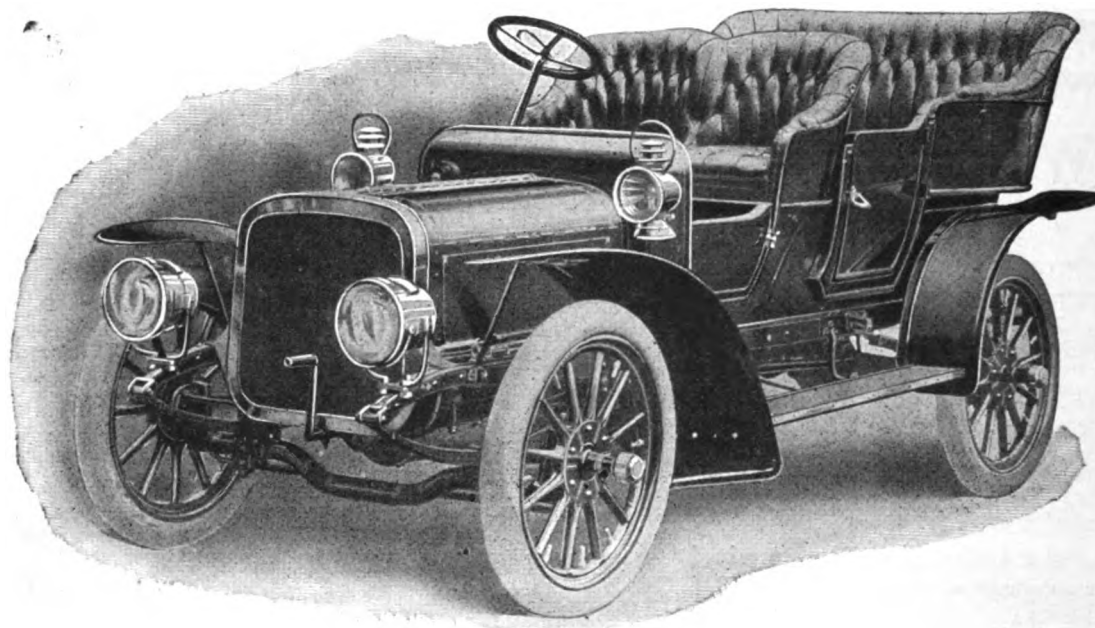
HYATT ROLLER BEARINGS TURN FRICTION INTO ENERGY

HYATT ROLLER BEARING COMPANY
HARRISON NEW JERSEY
ARE YOU FROM MISSOURI?

Aerocar

The Car for today, tomorrow and years to come.

—Built by practical men.—



The **Aerocar** achieved the most pronounced practical success at the New York and Chicago Automobile Shows. It was conceded as possessing the one perfect air-cooled motor, while in beauty of design, and elegance of equipment and finish it is second to no other motor car made. As practical evidence as to the why and wherefore we again repeat the specifications and detailed information given in previous advertisements.

AEROCAR SPECIFICATIONS.

MODEL—A.
PRICE—\$2800, f. o. b. Detroit.
BODY—"Side Entrance" Tonneau. Front doors (easily detached and complete without them.)
COLOR—Royal Blue.
SEATING CAPACITY—Five persons.
TOTAL WEIGHT—2000 pounds.
WHEEL BASE—104 inches.
WHEEL TREAD—56 inches.
TIRE DIMENSIONS—Front, 4x34.
TIRE DIMENSIONS—Rear, 4x34.
STEERING—Worm and nut.
BRAKES—Two (rear hub) and transmission.
GASOLINE CAPACITY—20 gallons.
FRAME—Pressed steel.
MOTOR POWER—24 h. p.
NUMBER OF CYLINDERS—Four.
CYLINDERS ARRANGED—Vertical in line.
COOLING—Air.
IGNITION—Jump spark with storage battery.
DRIVE—Shaft, bevel gear.
TRANSMISSION—Sliding gear.
SPEEDS—Three speeds forward and reverse.
CLUTCH—Leather-faced cone clutch.
ROAD CLEARANCE—9 inches.
STYLE OF TOP—Extension.

DETAIL INFORMATION.

The frame is of pressed steel, and sufficiently strong so that there is no possibility of its sagging or becoming distorted from the hardest possible use to which the car may be put.

The four cylinders of the motor are cast separately and are of a peculiar, symmetrical, flanged construction. The bore is 4 inches by 4 inch stroke. Both cylinders and pistons are made of a special gray iron mixture, very hard, fine grained, and close, and without speck or blow hole. The construction of piston and rings is such that it prevents an excess of lubrication accumulating on top of piston, obviating the usual deposit of carbon, generally found on either air or water cooled motors.

The crank case is in two pieces, and are fine specimens of aluminum castings, with handhole plates, making bearings and connecting rods easily accessible to inspection.

The mechanically operated valves, located in the cylinder head, are interchangeable and made of nickel alloy.

The crank shaft is of generous proportions, made from high carbon steel, hammered, forged, rough-turned and ground to size. Phosphor bronze and nickel Babbitt bearings, of ample wearing surface, are found throughout the motor.

The commutator is placed in a vertical position, which is very accessible. Both primary and secondary wiring are incased in fibre tube.

Carburetor is thoroughly automatic, making starting almost instantaneous and fuel consumption very economical.

Lubrication is of the splash system, through the agency of a Hill Precision Oiler.

(In addition to the peculiar construction of the cylinders to facilitate air cooling, a 15-inch fan is used the six blades of which are made of sheet brass. It is carried on Hess-Bright ball bearings. The construction of this fan is theoretically and practically correct, the blast being concentrated directly on the cylinders. On a still day, the fan is unnecessary, the motor cooling entirely by the movement of the car. Some of these motors have been run 3500 miles without an adjustment to the connecting rod or bearings being necessary.)

We courteously solicit the opportunity of sending our illustrated detailed information. A postal card will bring it.

We courteously solicit the opportunity of giving a practical demonstration of the running merits of the **Aerocar**.

Some good territory is still open to agents who will write us promptly.

THE AEROCAR COMPANY, Detroit, Mich.

Members American Motor Car Manufacturers' Association



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The Fastest Time Ever Made By Any Moving Vehicle

was made on

G & J TIRES

by the

Stanley Steamer

at

ORMOND

One Mile 28 $\frac{1}{2}$ sec.

THE STANLEY CAR HOLDS THE FOLLOWING
WORLD'S RECORDS:

Distance.	Record.	Driver.	Time.
1 Kilometer.....	World's.....	Marriott....	.18 $\frac{2}{3}$
1 Mile.....	World's.....	Marriott....	.28 $\frac{1}{2}$
2 Miles.....	World's for Steamers and American Cars.....	Marriott....	.59 $\frac{3}{4}$
5 Miles.....	World's.....	Marriott....	2.47 $\frac{2}{3}$
15 Miles.....	World's for Stock Cars.....	Durbin.....	13:12

Every one of these records was made on regular G & J Tires, selected from stock shipments; and the tires were never changed nor even blown up from the time they left the Stanley Factory at Newton until they returned there.

The same set of tires went through the preliminary practice and the entire meet, without so much as having a pump put to them.

Is this not-convincing proof that G & J TIRES are THE FASTEST AND BEST TIRES MADE.

Write us for full information.

G & J TIRE CO.

Indianapolis.

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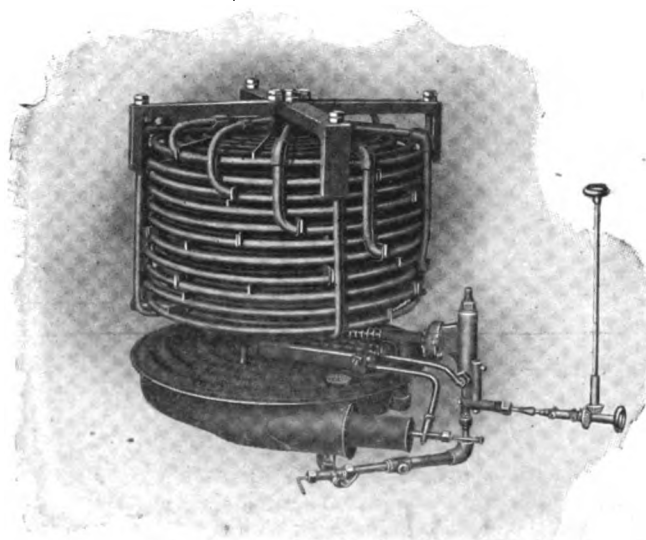
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The Incomparable WHITE

The Car for Service.



FIRST, LAST, AND ALL THE TIME.

The first endurance run in this country was held September 9th-13th, 1901, from New York to Rochester, under the auspices of the Automobile Club of America. Eighty cars, American and foreign, started and but twenty earned first-class certificates. Among the starters were four Whites, all of which earned first-class certificates.

The latest endurance run in this country was held January 25th-26th, 1906, from Los Angeles to San Diego, under the auspices of the Coronado Country Club. Thirty representative cars started and but two gained a perfect score. One of these was a White and the other a gasoline car of 40 per cent. greater cost. As the White had used three gallons of gasoline less than its adversary, it was declared the winner and awarded the John D. Spreckels' cup.

All reliability and endurance competitions held in the interval between the two above-described contests have, with practically unbroken monotony, resulted in White victories.

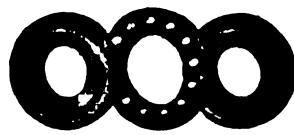
Above is illustrated the White generator, one of the "reasons why."

WRITE FOR LITERATURE.

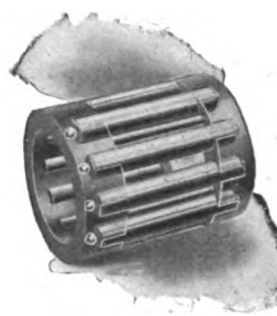
WHITE SEWING MACHINE COMPANY
CLEVELAND, OHIO



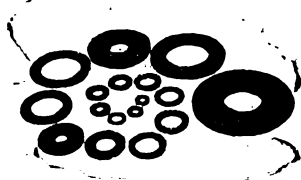
Flanged Angular Ball Bearing



Grooved Ball Thrust.



Journal Roller Bearing.

Annular Ball Bearing.
Full Type.

Ball Thrust Collars.



Journal Roller Bearings.



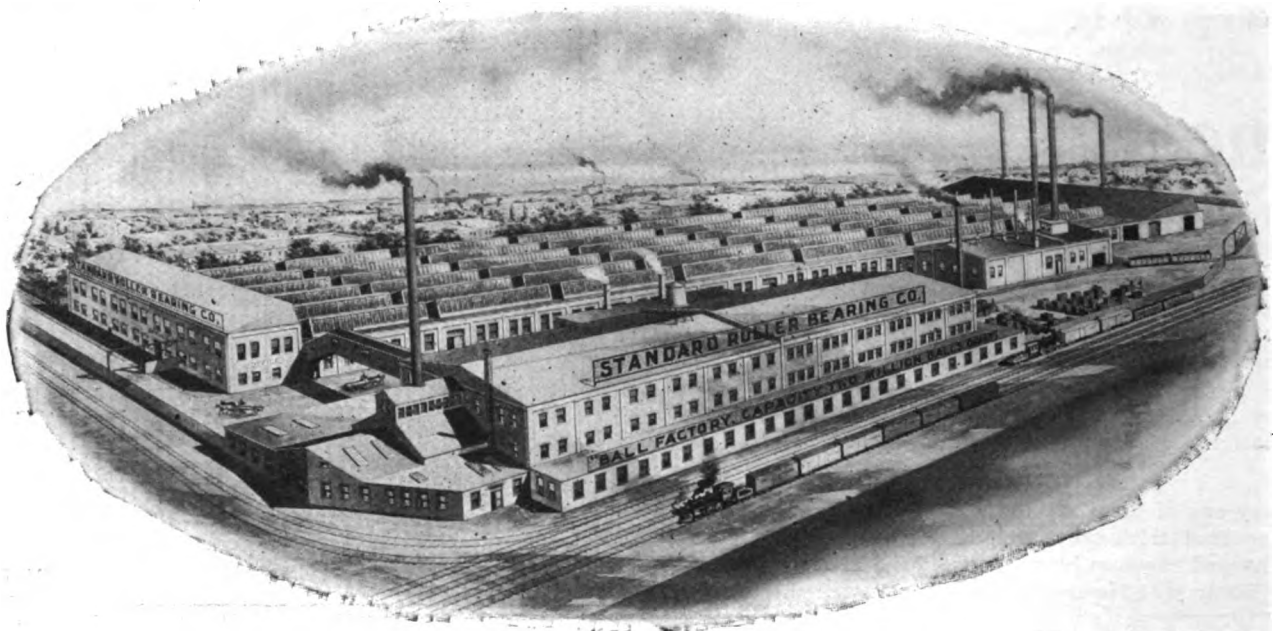
Rear Automobile Hubs.



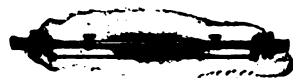
Plain Roller Thrust.



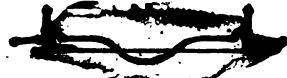
Miscellaneous Bearings.



Total Floor space, including Automobile Axle and Annular Ball Bearing Department 175,000 square feet.



Front Axle.



Lamoiné Axle.



Bevel Gear Axle.



Chain Drive Axle.



Roller Bearing Hangers.



Sleeves and Casings.



Ball Thrust Collar.



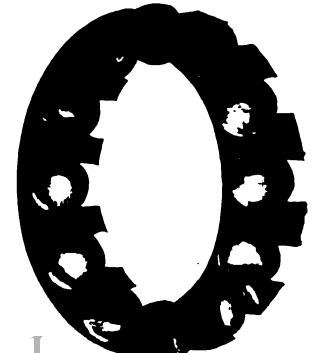
Journal Roller Bearings.

Annular Ball Bearing.
Silent Type.

Roller Bearing with Casing and Sleeve.



Front and Rear Hubs.



Ball Retainer.

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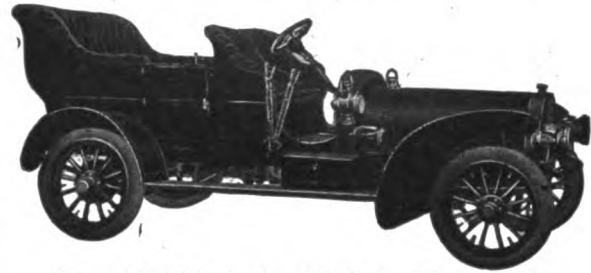
National



National Model D, 4-cyl., 35-40 H. P. Price, \$3,000.

A National Stock Car, Model D, holds the World's Record of 1094 3-16 miles in 24 hours. National Cars are a known quantity.

WHY EXPERIMENT?



National Model E, 6-cyl., 50-60 H. P. Price, \$4,000.

National Model E is an innovation in touring cars that will be extensively copied. It is powerful, simply controlled, practically noiseless and its comfortable, roomy aluminum body seats seven passengers, all facing forward.

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NATIONAL MOTOR VEHICLE CO.,

E. 22d Street, Indianapolis, Ind.

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Lancott Motor Co., 163 Columbus Ave., Boston
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Colonial Auto Co., 3944 Olivé St., St. Louis, Mo.

Liberty Auto Co., 138 Beatty St., E. E., Pittsburg
National Motor Car Agency, 705 S. Main St., Los Angeles, Cal.
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THE Modern Car.

40-45 H. P. Double Chain Drive.

112-inch wheel base.

Individually cast cylinders Battery and high tension magneto ignition.

Individually designed bodies.

PRICE, \$7,500.00.

28-32 H. P. Double Chain or Direct Drive

102-inch wheel base,

Battery and low tension magneto ignition.

Bodies to your own taste.

PRICE, \$4,000.00.

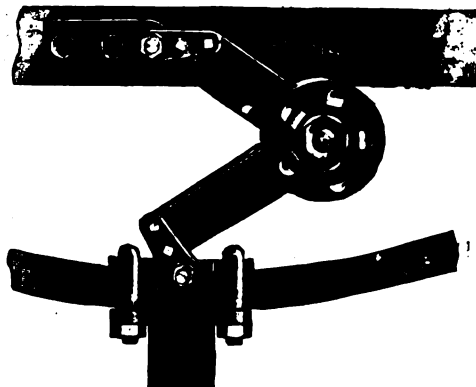
U. S. sole representatives of Societe L'Oleo plugs for battery and magneto ignition. Absolutely soot-proof.

THE VIQUEOT COMPANY

LONG ISLAND CITY, N. Y.

IMPROVED TRUFFAULT-HARTFORD SHOCK ABSORBER

TRADE MARK



Increases the speed

Enables cars to proceed at highest speed over all obstructions.

Doubles the life of tires.

Prevents lost traction.

Absolutely prevents breaking of springs.

Makes cobblestones and rough roads seem like asphalt.

New model is fully self-adjusting. Requires no attention after application.

Adapted by the Pierce Great Arrow, Locomobile, Matheson, Richard-Brasier, Peugeot, Napier, Gobron-Brillié.

Cars under 1500 lbs. \$40 (four suspensions).

Cars over 1500 lbs. \$60 (four suspensions).

WARNING

We are the owners of fundamental patent entirely covering every practicable form of frictional retarding devices for vehicle springs and hereby warn the trade from handling any infringing device that may be offered for sale. We also warn the trade against the use of the term "Shock Absorber" which is our Trade Mark.

HARTFORD SUSPENSION COMPANY

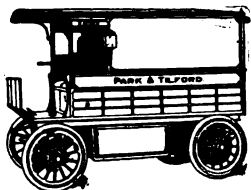
E. V. Hartford, Pres.

67 Vestry Street New York.

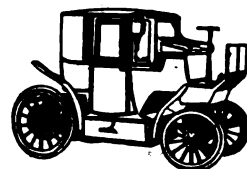
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GOBRON-BRILLIÉ,
"THE FINEST AUTOMOBILE IN THE WORLD."

Everything in Electrics



From the handy
delivery wagon
to the
luxurious Brougham.



Our line includes over 100 Standard Designs of the better class of Electric Vehicles, adapted to every social need or business requirement.

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VEHICLE EQUIPMENT COMPANY

Borden Avenue

LONG ISLAND CITY

New York

Largest Builders of Commercial Automobiles in the World

Why Goodyear Detachable Auto Tires Won't Rim Cut

WHEN an Auto Tire gets rim-cut, it's time to feel for your pocket-book and ask yourself, "What tire shall I get *next* time?"

For a rim-cut tire is pretty near its finish.

And the chances are ten to one that if you are forced to ride around the block on an ordinary tire with ordinary rims your tire will be rim-cut before you get there. Because ordinary rims are just like a dull jack-knife.

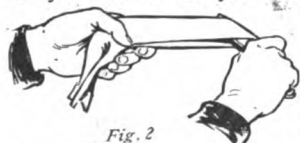


Fig. 2



Fig. 3

Now if you wished to cut a strap with that dull knife, and the strap was held like Fig. 1 you couldn't do it, because your strength would not be great enough. But if you take the strap like Fig. 2, with a little sawing you can cut it.

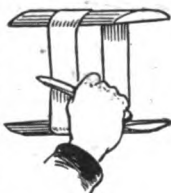


Fig. 4



Fig. 5

That's exactly the way the ordinary rim cuts the ordinary tire. When the tire is inflated, like Fig. 3, even the tremendous weight of the car is not sufficient to cause the rim to cut the tire.



Fig. 6

But just as soon as it gets flat, like Fig. 4, then the rim begins to cut it, just as the knife did the strap in Fig. 2.

Now look at the picture of the Goodyear Auto Tire on the Goodyear Universal Rim (Fig. 5.) The portion of the

rim against which the tire rests forms the arc of a large circle. That rim can

no more cut the tire than you could have cut the strap by using the handle of the knife instead of the blade.

Notice the edge of the ordinary rim used with ordinary tires (made into a circle), in Fig. 6, and compare with the Goodyear Universal Rim, used with Goodyear Auto Tires (Fig. 7.)

Then you can see more clearly what we mean.

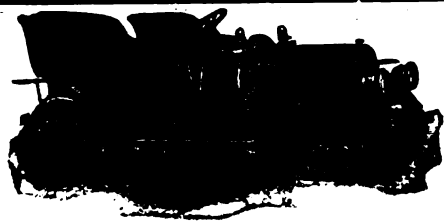
We (and others) have ridden the Goodyear Auto

Tire on Universal Rims *absolutely flat* for 25 miles on rough roads without the least injury to the tire. We have the evidence if you would like to see it.

This is only one reason why wise riders are specifying Goodyear Auto Tires on Universal Rims for their new cars. Our "Good News Book" gives ALL the reasons. It is intensely interesting to Manufacturers, Dealers and Riders seeking relief from tire troubles.

THE GOODYEAR TIRE & RUBBER COMPANY, Grove Street, AKRON, O.

Branches in following cities: Boston, 6 Merrimac St.; New York, 253 W. 47th St.; Chicago, 110 Lake St.; Cincinnati, 242 East Fifth St.; St. Louis, 1219 N. Broadway; Cleveland, 60 Frankfort St.; Philadelphia, 1521 Spring St.; Denver, 230 Sixteenth St.; and Detroit, 242 Jefferson Ave.



IT IS NOW WELL KNOWN

THAT THE

ROYAL TOURIST

is the most reliable and most economical motor car built anywhere.
If you care to confirm this statement

ASK AN OWNER

OF A

ROYAL

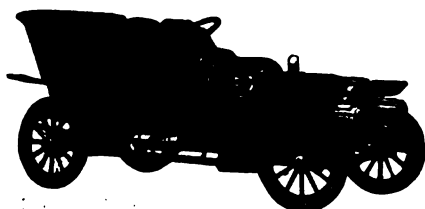
THE ROYAL MOTOR CAR CO.

Cleveland, O.

AGENTS: C. A. DUERR & CO., New York, N. Y.; G. J. DUNHAM, Boston, Mass.; THE McDUFFEE AUTOMOBILE CO., Chicago, Ill.; G. W. CAPLIN, Minneapolis, Minn.; AUTOMOBILE & SUPPLY CO., Ltd., Toronto, Ont.; MOTOR SHOP, Philadelphia, Pa.; REVBURN MOTOR CAR CO., St. Louis, Mo.; STANDARD AUTO MOBILE CO., Pittsburg, Pa.; AMOS-PIERCE AUTO CO., Syracuse, N. Y.; SCHOEFFEL CO., Rochester, N. Y.; ROYAL MOTOR CAR AGENCY, San Francisco, Cal.;

Member A. L. A. M.

A Tribute from the People.



THE PREMIER,

"THE QUALITY CAR"

(AIR COOLED)

attracted marked attention at the great New York Show, owing to its beautiful design, luxurious equipment and upholstery, and its "forceful" appearance in general.

Upon examination our visitors found that its real merit lay in its construction—pressed steel frame, powerful motor (20-24 H. P.), selective type sliding gear transmission (three speeds forward and reverse), I-beam front axle, full elliptic springs with Premier shock-absorbing head, easy, irreversible, steering gear; great flexibility, light weight, and great speed, recommended it to any one desiring a splendid motor car, and the general verdict was "there is no better car at any price"—no car which accomplishes its end more satisfactorily.

A further tribute, of a character so substantiated as to leave no doubt of sincerity, was the fact that many of these admirers bought the cars, then told their friends, and they came and saw and bought! So Premier fame—justly earned—spreads. If you want to know about the cars, write for our new catalogue and booklet.

\$2,000 and \$2,250—f. o. b. Indianapolis.

PREMIER MOTOR MFG. COMPANY,

Indianapolis, Ind., U. S. A.

Members American Motor Car Manufacturers' Association.

1906
Acme
"From Steel Bar
To Finished Car"

We Manufacture—
Not Merely "Assemble"

"The strength of a cable is the strength of its weakest link."

The working parts of an "Acme" correspond to the links of a cable, and as we make all our own parts we do not hesitate to give each completed car

**A YEAR'S ABSOLUTE
BINDING GUARANTEE**



Type XIV

5 Passenger Tonneau
4 Cylinder—30-35 H. P.
Speed Limit 50 miles
Price \$2750.00.

Type XV

7 Passenger Touring Car
4 Cylinder—45-50 H. P.
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Price \$3500.00.

Let an ACME prove its "own merits"—arrange by mail for a demonstration at any of our branch offices or write direct to the factory.

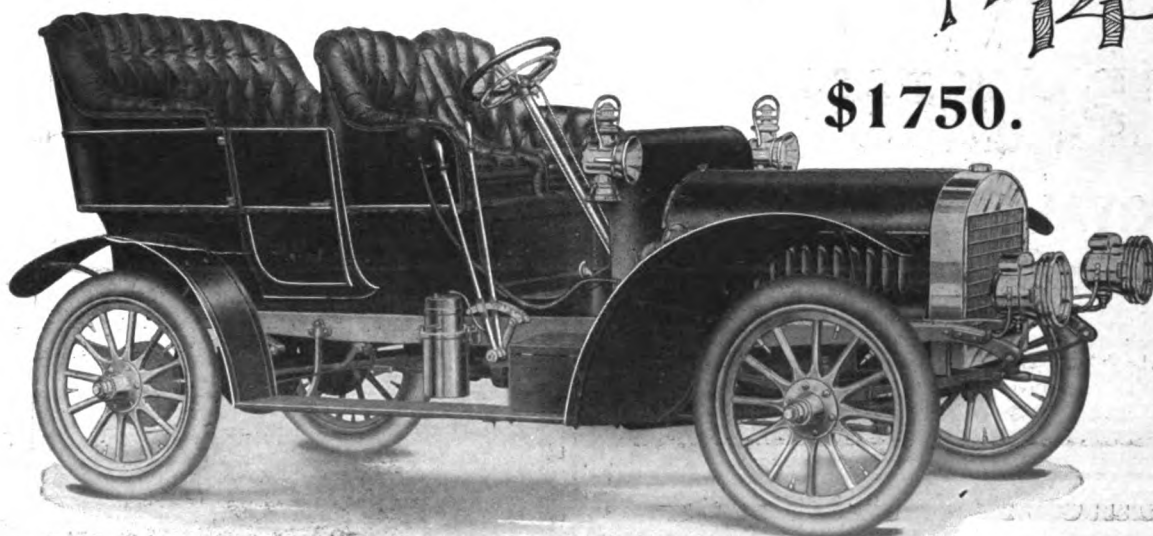
ACME MOTOR CAR CO.,

READING, PA.

Rambler

Model
14

\$1750.



It was generally conceded the financial proposition of both shows.
It is a medium weight touring car, strictly modern in design, equipment and appointments.
The logical result of years of study and development in the direction of simplicity in design and structural economy.

The power plant comprises a four cylinder vertical motor with sliding gear transmission and shaft drive.

The accessories, such as carburetter, igniting, lubricating and cooling systems, are all the latest and most approved types.

Only the concentrated efforts of a large and perfectly equipped organization render possible the production of such a car at such a price.

Not only is the first cost attractive but the structural simplicity assures the minimum expense of care and upkeep.

Your most critical inspection is invited and our catalog, giving full details, is at your service.

Thos. B. Jeffery & Company

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Kenosha, Wis.

BRANCHES:

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Representatives in all leading cities.

THE MOTOR WORLD.

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE
AND KINDRED INTERESTS

Volume XII.

New York, U. S. A., Thursday, February 22, 1904.

No. 4.

OLDS HAS TWO-CYCLE PATENTS

Pioneer Manufacturers Quietly Secure Control of Situation—How Matters Stand.

The Olds Motor Works is in control of the two-cycle patent situation.

Whispers had been afloat that the Olds people had not been slumbering since the patents on the two-cycle engine so suddenly assumed importance three months ago, but it was not until this week that the extent of their wakefulness was disclosed. F. L. Smith, general manager of the Olds Motor Works, and Mr. Seegar, general manager of the Olds stationery engine interests and also a director in the Olds Motor Works, both are in New York, and after considerable persuasion admitted that the Olds interests had secured control of both the Day-Cock and the Sintz patents, the two exploited basic patents covering the two-cycle, three port gas engine. To the great majority of people this will be in the nature of sensational news.

The Cock patent, No. 544,210, of Aug. 6, 1895, was generally supposed to be still the possession of Joseph Day, the Englishman, who so suddenly appeared on the scene and who was first heard of three months since, when he appeared at the factory of the Elmore Mfg. Co. and convinced the Elmore people of the wisdom of taking out a license under the Cock patent. The Sintz patent was issued Nov. 21, 1893, and as was exclusively stated in the Motor World of Feb. 1, last, in which both patents were illustrated and described, was supposed to be the property of James Whittemore, a Detroit attorney. Since that time Mr. Whittemore has also acquired the Day-Cock patent and it now transpires that in respect to both patents he was acting for the Olds Motor Works; his ownership is merely nominal. The rearrangement of affairs will not, of course, in any way disturb the Elmore license granted under the Day-Cock patent, but henceforth any others who may desire to operate under either the Day-Cock or the Sintz patents must "see" the Olds Motor Works, or rather their attorney, Whittemore, which is practically

one and the same thing. The Day-Cock patent, incidentally, has less than a year of life left in it while the Sintz patent does not expire until 1910.

While the unearthing and exploiting of these patents has created a considerable flurry in the automobile trade, it has produced something akin to consternation in the motor boat industry, in which two-cycle engines are more generally employed. Many of the boat makers have been granted licenses while others are belligerent. Only this week the stationery and marine motor manufacturers are holding what is supposed to be a very secret meeting in New York, to discuss the situation. When Mr. Smith, of the Olds Motor Works, was asked if he was aware of the fact, he smilingly admitted that he was and added that Olds representatives would be found hovering in the "offing."

Aerocar Rushing a Big Addition.

Although the Aerocar Co., of Detroit, erected their factory in record time and have had time to little more than become thoroughly installed in it, they have broken ground for a big addition to the plant which also is being built in the "double quick." The New York show is directly responsible for it. The Aerocar people came east with half of their production of 500 cars disposed of. This half was speedily snapped up, and to meet the demand created by the Chicago exhibition, an enlarged output became imperative. No time was lost in deciding to meet it by erecting an addition to the plant, which now is well under way.

More Two-Cycles in Prospect.

According to apparently trustworthy reports, the makers of the Rambler, Ford, Buick and Reliance cars are working on two-cycle engines. This, of course, does not necessarily imply that they will market such engines, but is interesting as showing a trend of trade thought.

Ariel to Remove to Bridgeport.

The Ariel Motor Car Co. of Boston, is making ready to remove to Bridgeport, Conn. It has closed negotiations for a factory in the latter place, of which it will take possession on March 1st.

N. A. A. D. GROWS AMBITIOUS

Seeks to Establish Co-operative Purchasing Bureau—Discounts the Magnet.

Back of the action of the National Association of Automobile Dealers in engaging W. R. Densmore as business manager and in establishing offices in Buffalo, it transpires that a most ambitious project is formulating.

"Increasing the membership" and "building up the organization" is not to be the sole duty of the business manager, nor is the association to devote its chief attention to bettering the relations between dealers and the automobile manufacturers. For, as a matter of fact, it is the accessory manufacturers who are due to receive the attentions of the dealers' association.

The dealers have become possessed of the idea that in co-operative purchasing there is a big future for the organization. Accordingly, the effort is being made to establish a purchasing department, which will "lump" the dealers' orders and demand quantity discounts, the goods to be distributed and the low prices, of course, be shared by the retailers. How far the scheme has progressed is not known, although the demand for discounts has been made, or, at least broached, to a number of accessory manufacturers.

Several years ago an exactly similar enterprise was attempted in the bicycle business. The co-operating dealers incorporated as a distributing company, opened a depot in Boston and started with a great flourish of triumphs. The venture, however, met with most indifferent success and fell very far short of the promoters' anticipations.

Reliance Issues Gold Bonds.

To secure additional capital with which to expand its growing business, the Reliance Motor Car Co., of Detroit, Mich., has issued \$150,000 five per cent. ten year gold bonds. A trust mortgage was filed last week. It is stated that none of these bonds will be placed upon the market, having all been subscribed for by the present stockholders.

In the Retail World.

Carl Lagergreen, a machinist of Ulster-ville, Mass., is erecting a sizeable garage on the lot adjoining his present location.

The Red Rock Auto & Wagon Works, of Washington, D. C., has established itself in a commodious garage at 2613 Pennsylvania northwest.

Bloomington, Ill., will have an automobile garage this spring. Veery & Son have announced their intention of building one of concrete blocks.

The Automobile Co. of Paterson, N. J., has been incorporated to do a general garage business. The company has temporarily located at 217 Paterson street, that city.

The Covell & Crosby Motor Co. has installed itself at 1621 Broadway, New York City. The concern has taken the metropolitan agency for the Ariel car, a Boston product.

John Willey, of Elmira, N. Y., has purchased the business of E. H. Strong, in Binghamton, N. Y., and will continue to run the same. The automobile department will be enlarged.

The Krueger Mfg. Co., which was recently incorporated in Milwaukee, Wis., to make automobiles, is preparing plans for a \$14,000 factory building. It will be located on Biddle street, near East Water.

The Akron (Ohio) Automobile Garage Co., last week moved into its new two-story brick garage on South Main street. The old quarters of the company will be retained for repairing and storage purposes.

The Way-Roberge Motor Car Co., of Meriden, Conn., has had to vacate the premises at Pratt and Benjamin streets, as the building was sold last week. The firm has temporarily located in the Curtiss Way building.

Frank E. Howes and H. Lawrence Ridings, of Utica, N. Y., have formed a co-partnership and will operate at 128 LaFayette street, that city, as the Standard Auto Co. The Reo and Ford cars will be exploited.

A. B. Smith, with J. M. Lauder as partner, will open a garage at his property, on Howard street, Akron, Ohio, where they will handle the Rambler and Premier cars. The repair shop will be located at 697 South Main street.

Another new and apparently unknown foreign car to make its entrance into New York is the Fraignac-Desogouttes, made in Lyons, France. Georges Dupuy, a Parisian newspaper correspondent of 31 West 42nd street, has taken the agency.

MacNaughton & Dubroy, who were incorporated at Buffalo, N. Y., last week, will do a general garage business. They have rented the Werner building on Main street. Mercedes, Renault and Simplex, in addition to American cars, which have not yet been selected, will be carried.

Harry S. Houpt, the New York agent for the Thomas, has taken on the Rauch

& Lang electric. The entire basement of the new garage at Sixty-third street and Broadway will be used for their storage and care.

Fire in the garage of the Quaker City Cab and Automobile Station, 1113 Vine street, Philadelphia, Tuesday last, 13th inst., completely gutted the building and burned five touring cars and one sightseeing car. The loss will amount to \$15,000.

Kirk Bros'. Auto Co., is the style of the concern formed in Toledo, Ohio, and which Ezra E. Kirk is president, and Ed. E. Kirk general manager. Oldsmobiles will be extensively handled for the present, though other lines may be added later on.

According to the Oxford, N. Y. Times, the shows held in New York were not in vain, for Messrs. Morton & Webb, of that town, purchased a 14 horsepower Pope-Tribune touring car, and secured the agency for that style of car for Chenango county, as well as the other lines of the Pope Mfg. Co.

The Troy and Albany Automobile Exchange, of Albany, has opened its new garage at the corner of State and Lark streets. The new building occupies a lot 90x156 feet, and is two stories high. On the first floor are the display rooms, storage room, and lockers, and the machine and repair shop is located on the second. The company has the agency for nine makes of cars and will in addition carry a full line of sundries.

When completed, it is claimed that the new garage now being erected by the recently incorporated Welch-Estberg Co., of Milwaukee, Wis., will be the equal of any building of similar character in the West. It will be a modern four-story building, 50x150 feet, at Seventh and Grand avenues, fronting on the latter with a basement entrance on Seventh. The basement will be used for transient storage and a repair shop. The Welch-Estberg Co. will handle the entire Pope line in addition to the Northern.

The Sterling Motor Car Co., of Binghamton, N. Y., is installing an electric dynamo capable of charging thirty cars at one time in its garage. The company has been reorganized and these officers elected: President and manager, L. L. Heller; vice-president, Fay Spawn; secretary, J. S. O'Neill; treasurer, Ward Decker; directors, the officers and J. O. Heller. For 1906 the company's line will comprise the Locomobile, Columbia, Royal Tourist and Cadillac gasoline and Columbia and Baker electric cars.

Dam the Sales Manager.

One of the "whole Dam family" has been appointed salesmanager for the Gobron-Brille cars, the American agency for which has been taken by the Hartford Suspension Co., of New York. President E. V. Hartford has selected Andrew C. Dam to act in that capacity.

The Week's Incorporations.

Chicago, Ill.—F. A. Weaser Co., under Illinois laws, with \$10,000 capital; to deal in automobiles. Corporators—Frank A. Weaser, S. F. Scott and G. A. Major.

Rochester, N. Y.—Brownell-Trebert Co., under New York laws, with \$50,000 capital; to make automobiles. Corporators—F. A. Brownell, H. L. F. Trebert and Paul L. Hardy.

Paterson, N. J.—The Automobile Co. of Paterson, under New Jersey laws, with \$15,000 capital. Corporators—Alfred B. Watson, Samuel J. Watson and Edwin M. Squires.

New York City, N. Y.—New York Motor Truck Co., under New York laws, with \$85,000 capital. Corporators—N. W. Schlatter, Jersey City; J. W. Deane and William Conover, New York.

New York City—American Anti-Puncture Tire and Automobile Co., under New York laws, with \$50,000 capital. Corporators—O. L. Ellison, Dr. C. A. Hegeman and E. L. Barney, all of New York.

Brockton, Mass.—Brockton Auto Exchange, under Massachusetts laws, with \$5,000 capital; to deal in automobiles. Corporators—President, F. E. Smalley; treasurer, M. H. Bates, Brockton.

Jersey City, N. J.—Manly Drive Co., under New Jersey laws, with \$200,000 capital; to make variable speed gears. Corporators—A. H. Overman, T. M. Rowlette and F. I. Lockman, all of New York City.

New York City, N. Y.—W. J. Duane & Co., under New York laws, with \$5,000 capital; to manufacture motors, engines, etc. Corporators—W. J. Duane, F. A. Phillips, A. Y. Pringle, all of New York City.

Montclair, N. J.—Montclair Auto Station Co., under New Jersey laws, with \$50,000 capital; to manufacture motors, engines, etc. Corporators—John W. Surbrug, William H. Benjamin and Roy Jenkins, all of Montclair.

Hamilton Square, N. J.—Walter Automobile Co. of New Jersey, under New Jersey laws, with \$1,000,000 capital, to manufacture and deal in automobiles. Corporators—W. Walter, J. R. Vanderveer and F. Kuser, New York; A. R. Kuser, Bernardsville; F. W. Roebling, C. E. Murray, W. A. Roebling and A. Reeves, Trenton; J. L. Kuser, Bordentown; H. Unger, N. King, C. W. Stengel, A. Van Winkle and W. H. Guerin, Newark.

Indianian Flirting With Fort Worth.

J. M. Smelzer, of Columbus, Ind., who claims he represents a concern that builds automobile engines "suitable for either gas or gasoline," is coquetting with the Factory and Home Industry Club of Fort Worth Texas. He is looking for a suitable location for a mammoth factory and, naturally, the Texans will be asked to subscribe liberally for stock.

CANCELS THEIR CHARTERS

New Jersey Lops off a Lot of "Dead Ones" Who Failed to Pay Taxes.

New Jersey's annual volume of corporations that failed or neglected to pay the corporation tax for 1905, after an extension of time by the governor, and therefore are now without their charters or the legal right to do business, was published this week. As usual, among the two or three thousand corporations, some are identified with the trade. Among them are: Airless Pneumatic Tire and Rubber Co., American Rubber Works Co., Atlas Automobile Co., Auto Coupler and Supply Co., Auto Street Sweeper Co., Bradford Gas Engine Co., Engleman Patent Vehicle Gear Co., Eureka Automobile Co., Federal Motor Vehicle Co., Fischer Motor Vehicle Promotion Co., German American Steel Ball Co., Hoffman Lubricating Oil Co., International Gas Engine Co., International Tire, Wheel and Rubber Mfg. Co., Interstate Ball Bearing Co., Metropolitan Motor Express Co., Mobile Transit Co., Mobile Transportation Co. of New Jersey, Munger Automobile Tire Co., Munson Safety Automobile Co., Official Automobile Blue Book Co., Pan American Motor Co., Perfecto Gas and Gasoline Engine Co., Phipps Road Car Co., P. T. Motor Co., Reserve Automobile Co., Seashore Auto Co., Shrewsbury Motor Works Co., Solar Motor Co., Standard Gas Engine Co., Standard Motor Vehicle Co., United States Automoter Co., United States Gasolene Engine Co.

Fisk to Build in Chicago.

A quick move, and one sure to leave its impress on the trade in Chicago, was made by the Fisk Rubber Co., during the Chicago show. Harry T. Dunn, the president of the company, arrived in the Windy City on Thursday, the 8th inst., and before night had executed a long lease on the property, 1440-42 Michigan avenue, on which will be erected an up-to-date rubber tire supply house. The lot is 25 feet front on the west side of Michigan avenue, adjoining on the south the new store of the Excelsior Supply Co., with a depth of 170 feet. The ground will be broken immediately for a two-story building covering the entire lot; the structure will have a front of pressed brick and will have a cement floor basement and be fireproof throughout.

A novel and attractive innovation will be that in the rear will be a fully equipped garage, so arranged that a customer desiring removal or repair of tires may drive into the room, have his car properly overhauled and new tires put on by expert workmen in attendance.

The basement will be used for storage of stock. The first floor front for the local sales offices and rear for tires in racks for immediate use and delivery. In the second floor front will be located the Western district offices and in the rear will be fitted up a complete repair shop with the most modern appliances.

As illustrative of the expedition with which this move was made, it is only necessary to say that the lease of the premises was made, the plans drawn for the new building and the unexpired lease on the present premises disposed of (at a profit) in one day, and the contract was made for the erection of the building and let within 24 hours thereafter. Foundations for the building were begun on Monday, February 14th, and the contractor is under bond to complete the same in 60 days, which is "going some." Of course, much of the preliminary work for the deal had already been accomplished by Ben H. Pratt, the active local representative of the Fisk Co., and Frank C. Riggs, manager of the western district, and Mr. Dunn expressed himself as highly pleased with the carefulness and promptness with which the negotiations were conducted.

White to Erect Pacific Palace.

Ground has been broken on Van Ness avenue, between Market and Fell streets, San Francisco, Cal., for a magnificent four-story garage and office structure, to be known as the Civic Centre building, and which will be the headquarters for the White steam cars, and the location of the Pacific Coast offices of the sewing machine company. The White company has leased the land for twenty years, at a cost of more than \$500,000. There will be about 200,000 square feet of floor space. The machine shop will occupy 12,000 square feet of the floor space, with hard white maple floors, and all the benches will be of hard white maple. The shop will contain traveling cranes, which will go to every part of it, and will be fitted up with an equipment at an expense of from \$10,000 to \$12,000 in machinery and special tools for automobile repairing exclusively. There will also be a paint shop and upholstering department for refinishing old cars. In addition to this there also will be space for the storage of two thousand sewing machines, and garage room for the storage of 250 automobiles.

Baltimore Organizes and Plans Show.

Baltimore is to have an automobile show in the spring; at least the Automobile Dealers' Association of Baltimore, which was formed last week for that avowed purpose, says so. With but one exception, every firm in the Monumental City was represented at the meeting and subscribed its name as a member and took a block of stock, the par value of which is \$10, and of which there are 100 shares. The association

organized with the following officers and members: President, R. Keating; vice-president, J. J. Mason; secretary, E. L. Buchanan; treasurer, Howard Gill; members, Auto & Motor Co., Callahan, Atkinson & Co., G. R. Surdeal, Motor Car Co., Mount Vernon Motor Car Co., Auto Outing Co., Mar-Del Co., Higgins & Mason, B. H. Bittle, Automobile Storage & Repair Co., and the National Electric Supply Co., and Commercial Vehicle Co., of Washington.

Messrs. Washington, Gill, Bittle, Nussbaum and Slee were appointed to find a place and suggest a date for holding the show. As soon as a charter is secured the local organization will ask the National association for a sanction.

Kaestner Assets Disposed of.

Frank M. Hoffman and Otto Knoblock, as receivers for the Kaestner Mfg. Co., of South Bend, Ind., which went into bankruptcy some time ago, have sold the real estate of the company to the St. Joseph Loan and Trust Co., for the amount of the mortgage is held on the plant, the purchase price being \$16,050.52. These figures include the buildings and machinery. The same concern also bought the office fixtures for \$915.93. The Kaestner Mfg. Co. went to South Bend two years ago from Chicago, and manufactured gasolene engines, but have never enjoyed a very roseate existence.

Garford and Royal Sue Each Other.

The suit of the Garford Mfg. Co. against the Royal Motor Car Co. for \$10,000 claimed to be due them for material purchased last year and which was recently instituted, has been followed by retaliation in the form of a counter-suit for \$75,000, brought by the Royal Company, on the grounds of defective material and damages resulting from the failure to furnish goods according to contracts. The Royal Motor Car Co. admit their indebtedness to the amount claimed, basing the refusal to pay on the grounds set forth in their counter-suit which is being filed this week.

Omaha Dealers to have a Show.

Omaha, Neb., dealers, of which there are exactly five, finally have concluded that as the expected help is not forthcoming from manufacturers, to hold a show, anyway. They have set the date the week of March 19-25, and will exhibit the new models in the Auditorium. It will, of course, be decorated.

New Plant for Providence.

A new concern to manufacture gasolene runabouts will soon be organized in Providence, R. I., to be known as the Page Automobile Co. Three model cars already have been constructed and it is said that several local capitalists have become sufficiently interested to subscribe for stock.



FISK TIRES

are made by a Company that has never tried to see how far it could go in cheapness without getting over the line that separates a thoroughly reliable tire from a "make believe."

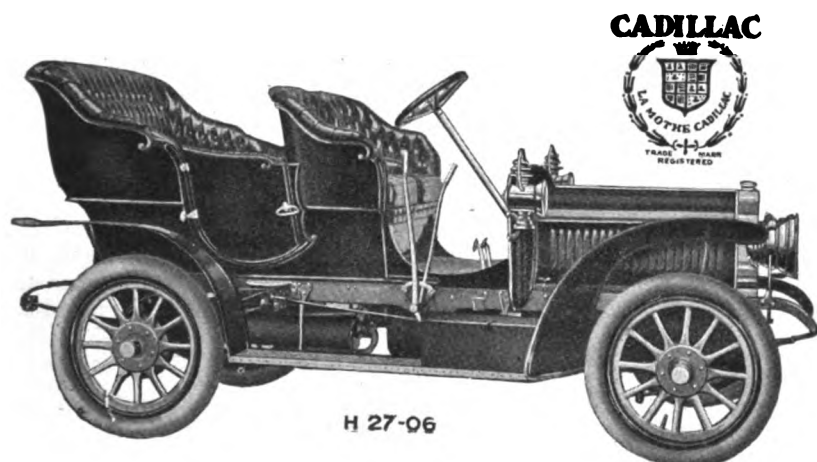
¶ We have never believed in the "35 inches to the yard" or "15 ounces to the pound" kind of tire building.

¶ Our whole aim is a dependable, safe, honest product at a fair price—and just about 100% of those who have used Fisk Tires endorse our efforts.

Fisk Tires Represent the Best Worth and Wear That Can Be Put Into a Tire At Any Price.

¶ They answer perfectly the requirements of exacting drivers, who seek Comfort, Economical Tire Service, and Safety from Accident.

THE FISK RUBBER CO., CHICOPEE FALLS, MASSACHUSETTS



CADILLAC



CADILLAC

MODEL H

Price \$2500, F.O.B., Detroit

(LAMPS NOT INCLUDED)

A car which not only upholds the reputation of "Cadillac Quality" but adds increased significance to that universally recognized standard of excellence.

MODEL H SPECIFICATIONS.

Passenger capacity	Five persons.	Wheels and Tires	32 x 4 inches.	Horse Power	30
Wheel base	100 inches.	Motor—Four cylinder	4 3-8 x 5 inches.	Weight	2400 lbs.

Price \$2500 list.

MODEL H RUNABOUT

Same as above but with Runabout body, price \$2400 list.

DRIVE—Direct shaft with specially ground and hardened gears.

BEARINGS—Genuine Hess-Bright ball bearings throughout including axles, front wheels, transmission and engine thrust bearings.

TRANSMISSION—Cadillac planetary type, specially cut and hardened gears, three forward speeds and reverse.

STEERING GEAR—Our own new design, positive and reliable in its action.

BRAKE—Double acting, expanding and contracting on drums on rear wheels. Sufficiently powerful to lock wheels almost instantly.

CONTROL—Remarkably effectual by instantaneously acting governor.

LUBRICATOR—Special Cadillac type, mechanical pump feed, quantity regulated by speed of engine.

COMMUTATOR—New and efficient design placed horizontally on vertical shaft with a container.

CARBURETOR—Special type for four-cylinder motor, proven by exhaustive tests to be most effectual and economical.

RADIATOR—Honeycomb pattern of great capacity and exceptional cooling efficiency.

SPRINGS—Semi-elliptic front and three quarter elliptic rear affording extreme ease and comfort.

BODIES—Exclusive Cadillac design of unusual elegance, upholstered in hand buffed leather over steel coil springs and genuine curled hair.

CADILLAC MOTOR CAR CO., - - - Detroit, Mich.

Members Association of Licensed Automobile Manufacturers.



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Decline of the Demonstration.

Be it spoken with due credit to those who are taking the initiative in the movement, the day of the extended demonstration on the road is fast passing away, and the cars many of them, are being sold outright, like so much merchandise over a counter, and subject to the same general restrictions and reservations. Several of the dealers handling the better known cars, have found themselves able to give up the practice of demonstrating at length to the prospective customer and the alleged prospective customer, and despite the adoption of the daring policy, find themselves none the worse off at the end of the month than they would have been had they continued to offer free rides to all customers and their families and carry on the business of selling in the tonneau of a moving car.

The time has come when numbers of makers find themselves equipped with a reputation for thorough workmanship and careful attention to detail in the construction of their cars, that enables them to sell

largely on representation. The fact that a car is being regularly put out by a house of an already established standing, is proof positive of the worth of the machine without other recommendation than the guarantee which accompanies it. This being the case, the dealer no longer feels himself obliged to devote from one hour to an entire day in carrying prospective buyers about the country, wasting his own time, and wearing out his demonstrating car. Instead, although the demonstrating car is still kept in readiness, it is chiefly used in displaying the hill-climbing abilities of its type on the nearest severe grade; the free junketing trips are no more.

There has been a gradual reduction in the length of the average demonstration for several years, brought about first by the abuses which were beginning to be enormous, and second by the enforced reduction in the cost of selling induced by the increase in competition. The failure of the numerous schemes intended to secure the co-operation of local dealers in securing a uniform charge for demonstration on a rebate plan, forced the individual dealer to fall back on his own resources in the matter, and the natural result was that he reduced the item insofar as he could do so without jeopardizing his position in the market. The movement has been self-inductive for the most part, as a result of the difficulty of securing uniform adherence to any set regulations, and has been developed in measure with the success of the individual machines.

Thus it has come about that the mere fact that a car is offered for sale by a reputable house, is sufficient evidence of its ability to go and keep going under what are understood to be normal conditions, and the business of training operators and educating the purchasing public into the mysteries of automobile technicalities is relegated to the hands of professional trainers, for the most part. Many dealers still find it expedient to display the powers of their machines to a considerable extent by giving limited demonstrations to responsible persons, but most of these are exploiting cars of comparatively new make, which on that account demand a practical illustration of their worth.

About the Motor Cab.

It has been said that however well the various other questions pertaining to the design and construction of the motor car have been settled, the ignition problem is

still undetermined insofar as the adoption of a system which may be considered as finally satisfying all the requirements imposed upon it are concerned. However far from or near to the truth this may be, the fact remains that fewer makers seem to have come to an agreement in this matter than in any other, and that hardly a day passes without the announcement of some new system which is alleged to be essentially the thing. Among the many proposed schemes, and those which have been tried with greater or less success in the past, it would seem that none had been more fully discussed and more thoroughly disposed of than those depending on the principle of self-ignition, that is to say, ignition without the aid of any supply of external energy. Nevertheless, one of the most recent propositions involves the revival of this principle, albeit in a decidedly novel form.

The idea, which is the product of the combined effort of a couple of Parisian inventors, is nothing more nor less than the utilization of the exhaust gases of one cylinder for the ignition of the charge in the next in order in a multi-cylinder motor. In order to accomplish this, the cylinders are connected by a suitable system of piping in the proper order of their firing, and valves are interposed in order to secure the proper timing effect. Also the piping must be insulated in some way so that there shall be as little loss of heat as possible from the small amount of flame which is by-passed from the exhaust into the working cylinder. Granted the fulfillment of these conditions, it is apparent that it will be possible to secure an efficient ignition flame, and one of ample capacity for the purpose, at the expense of no external energy whatever, and that unlike other systems, there can be no possibility of a failure to ignite the new charge so long as the mixture fed to the cylinders is maintained at its proper composition.

As applied in practice, each cylinder is tapped at a convenient point in the combustion chamber, and a pipe led from it to the next in order of firing through a small chamber which acts as reservoir for the flame during the infinitesimal period of its retention, a check valve being interposed between it and the cylinder, in order to prevent the backward escape of the ignition flame during the exhaust. From this chamber a second pipe leads to the combustion shifts of men will be maintained and be in readiness for calls at any hour.

in regulating the timing. These ignition valves, as they may be called, are actuated from a single cam shaft in the usual way, the cams being provided either with a series of stepped faces disposed at varying angles about the shaft, or otherwise, with a helicoidal profile. By moving them laterally along the shaft, of course, the time of opening may be varied to suit the needs of the case.

It is perfectly evident that in any such arrangement, some other system of ignition would be essential for starting purposes and for use as a stand-by in the event of any derangement of the mixture which prevented any one cylinder from firing with sufficient force to secure a clean flame for the use of the next in order. In these days of double ignition systems, however, that would not of necessity prove an essential drawback, especially as the use of the self-inductive system would entail the loss of no battery or magneto energy. Also, it is evident that the need of insulating the little heat reservoirs might introduce difficulties which might impair the effectiveness of the scheme. As a scheme, however, and hence considered wholly in the light of its ideal possibilities, it possesses certain attractions which place it in the class of the modern improvements which have made the gas engine so useful a servant of man.

The Matter of Special Highways.

One of the newest and greatest problems of the age, the problem of maintaining and controlling the traffic of great cities, and its closely allied parent of far greater scope, the universal problem of the transportation of man and his goods, are becoming more and more salient to the smooth action of the mechanism of civilization every day. The growth and development of industries everywhere, and even more important still, the growth and development of mankind in its demands upon industry, are compelling the attention of those whom they most vitally concern with ever increasing urgency. The alarming growth of the congestion in the cities' streets, and its increasing rate of growth, demands the marshalling of municipal authority in its sagest capacity, to govern and direct it so that the machinery of communication shall run smoothly and not impede its own progress. At the same time the growth of inter-urban and inter-state traffic, and the slower, albeit no less steady, growth of the tributary traffic between country and

city, imposes a claim upon mankind which is as vital as the circulation of its own life-blood.

And into these two problems the problem of motor propulsion is injecting a new condition, that of speed, and the necessity of segregating traffic into classes according to its capacity for speed, under certain circumstances. Just how great a part the motor car is to play in the traffic of the future, none can say. Its friends and allies are disposed to accord it a most important part, while others, either in bullheaded opposition to its advancement, or through lack of attention to the importance of its present position, give it a lower rating in perspective. All are waking up to the fact that it is a factor to be reckoned with to a certain extent, however, and each is getting at its possibilities after his own fashion.

It is not to be gainsaid that the possibility of segregation properly controlled and governed is the saving grace of the traffic problem. Just how it is to be governed, however, and where and how it is to be applied, is a different matter. That it must come to a greater or less extent in all large communities, even as it has come to New York and other cities to a less degree, is certain. That it is to be applied to inter-urban and other highway traffic, when the need is sufficiently great, is to be inferred. It has been applied to railroads universally, it is essential to their welfare, and it will be as essential to the proper and safe conduct of highway traffic, when that traffic has been sufficiently great to warrant it. The crude attempts to throttle the movement of motor propulsion by stringent legal measures, but hastens the need of a solution of the traffic problem—it can in no wise check the development of the motor car. The making of speed laws and the regulation of traffic in general to certain fixed conditions acts in the same way.

One thing is certain. The construction and use of exclusive motor highways or courses as avenues between centres of activity, can not forward the cause of the automobile in a general way. On the contrary, it must tend to segregate it from other modes of traffic, and ultimately to form a barrier between it and other means of locomotion. The automobile was designed primarily for the common highway. It was intended to be a means of emancipation from the confinement of the railroad and a placement of its advantages in the hands of the individual rather than in the

COMING EVENTS.

February 19-24—Cleveland Automobile Show, under the auspices of the Cleveland Automobile Dealers' Association.

February 24-March 3—Philadelphia Automobile Show, under auspices of the Philadelphia Automobile Trade Association.

March 5-10—Buffalo Fourth Annual Automobile Show, under auspices of the Buffalo Automobile Trade Association.

March 10-17—Boston Automobile Show, under auspices of the Boston Automobile Dealers' Association.

April 2-7—Toronto, Ont., Automobile Show.

hands of the corporation. Obviously, to place the automobile on a course or track by itself, a suggestion that periodically recurs and that was only this week revived by Mr. John Brisben Walker, is to retrograde toward the spirit of the railroad, and accomplish in a measure just what the automobile was intended to avoid. The automobile on the highway, the automobilists' rights on the highway, and the equable control of the automobile among other traffic having equal rights with it in every respect, is the indispensable status which must be gained for the motor car in order that it may fulfil all the promises which have been made for it, and that it may become universally useful to mankind.

As a commercial or business venture, the motor highway undoubtedly could be made a success. As a means to an end, it undoubtedly could be made of great benefit to the user and the industry in certain localities and under certain circumstances. But ultimately, its effects would not be otherwise than harmful, since it would unavoidably serve to differentiate between motor and animal traction, and prevent that blending and amalgamating of all interests which alone will permit the essential of universal co-operation in the solution of the great and overwhelming traffic problem.

A striking illustration of the way in which the manufacturers of the day are caring for their patrons is furnished by the few aggressive members of the fraternity who keep inspectors constantly on the road in one of his cars traveling about from place to place and examining every car turned out from their shops and in service. Thus the maker himself constantly is enabled to keep his fingers on the public pulse, and thus to diagnose its needs to advantage.

TO TEST NEW DEVICES

A. C. A. May Attempt Philanthropic Work —Prizes as Means to an End.

At a meeting of the Board of Governors of the Automobile Club of America, held late last week, it was decided to establish a series of competitions to test new devices and improvements, as well as to bring out inventive ability in the line of automobile needs. The plan is to offer prizes for the best inventions of certain kinds made within a stated time, and others for open contests to demonstrate the advantages of new carburetters, anti-skidding and self-starting devices and other practical features. George F. Chamberlain, one of the pioneer members of the club, has been appointed chairman of the special committee to take the matter in hand, and Mr. Chamberlain hopes to appoint several practical members to serve with him in order that at least one or two contests along these lines may be arranged for the coming spring.

While the support of public spirited automobilists is not requested is so many words, it is apparent that offers of cups and other prizes for various inventions on the part of those who are more anxious to see practical results attained than speed records broken, would be very gratifying to the board of governors of the club.

"The automobile industry is now in such a position that a little additional incentive along certain lines would be almost certain to produce valuable inventions," was the way President Morris explained the situation. "The name of W. K. Vanderbilt, Jr., is associated with the speed properties of the car through the Vanderbilt Cup," he continued, "and it seems as if the time were ripe for other enthusiastic automobilists to come forward and take a vital interest in the progress of the industry in other departments. This is something that should appeal to all users of machines, for it is in the direction of making better, safer, and perhaps, more reasonably priced vehicles."

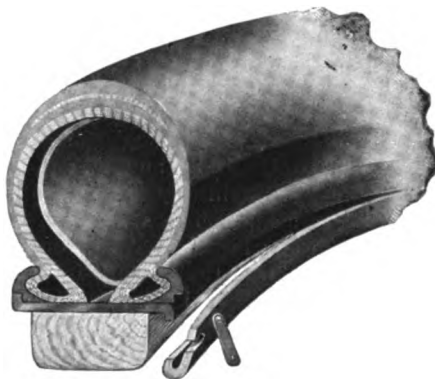
That there has been a tendency toward practical tests has been evident in the economy tests held last year. The proposal to extend this form of research is in line with what has long been a custom in France, a prize of several thousand francs having been offered only recently for the best form of automatic starting device. The same is true in England, where prizes have been offered at different times for various purposes, and although perfection has not been attained considerable progress has been made.

While nothing definite has yet been done, it is thought that in view of the widespread discussion of the subject of the alcohol motor, a prize may be offered in the near future for the best results to be obtained in the designing of such an engine within a certain period.

Diamond Acquires Marsh Rim.

From Akron, Ohio, comes the news that the Diamond Rubber Co. has secured exclusive control of the Marsh quick detachable rim, which means that there has been added to the Diamond line a mechanically fastened tire with the Marsh rim constituting the fastening.

The rim consists of three parts, the rim body proper which is permanently attached to the wheel, the removable outer flange of the rim and a locking ring which holds the removable angle in place. There are no separate small parts. The locking ring is U-shaped. It is held in position by expansion, but its security in place is further strengthened by the use of a small, easily operated lock. The U-shape of the locking



ring causes it to engage a bead projecting downwardly from the rim flange which it holds in place making the escape of the flange impossible whether the tire is inflated or not.

The opening of the locking ring with any small tool permits of its ready removal. With the locking ring removed the outer flange of the rim slips readily off. The inner tube can be then removed in part or entirely, or the tire can be taken from the wheel if desired. The reversal of the operations illustrated will return the tire to place again.

No tire staybolts are used with the Marsh rim, but as an additional safeguard against "creeping" the inner tubes are fitted with a rubber-headed staybolt which becomes a part of the metal valve stem of the tube and is tightened or loosened simultaneously with the tightening or loosening of the lock nut of the valve stem.

Haynes Reaches New York.

The New Haynes 50 horsepower, Model K, demonstrating car has finally made its appearance in New York and in consequence Manager F. G. Currie is correspondingly happy. The big Haynes, sound in construction and attractive in appearance, with its low list price of \$3,500, found many takers at the New York show and these reinforced by a small army of prospective buyers have been clamoring for a demonstration. The Haynes Model O, 30-35 horsepower and listing at \$2,250, equally attractive as a buying proposition, is expected in about a week.

CONTEST FOR STOCK CARS

Belgium Undertakes the Task and Evolves an Interesting Set of Rules.

Just what rules are conducive to the best results in a race designed exclusively for touring cars of the accepted standard types, would seem to be difficult to determine, but the promoters of the Coupe de Liedekerke, an annual event, limited strictly to touring cars, which will be inaugurated in Belgium, think they have solved the problem to the mutual satisfaction of the manufacturer and buyer alike.

In general the rules of the Coupe de Liedekerke provide that the race shall be run annually in Belgium on the road as far as possible without controls, and over a distance of at least four hundred kilometers. The competition is intended exclusively for manufacturers, each of whom may be represented by three cars, but these must be touring cars exactly as of models described in their catalogs. The maximum total cubic capacity of the cylinders of each car is limited to three litres 750 millilitres independent of the number of cylinders. The stroke must not be shorter than the bore.

The special rules which will govern the race, and which have just been made public, are as follows:

"The cars participating in the race must be identical in every point to the corresponding model sold by the manufacturers. The specification of the model and price will be taken from the last issued catalog of the manufacturer. In order to enable the judging committee to satisfy itself that the competing cars are identical with the current type, the manufacturers must indicate to the committee ten chassis, either from stock or in the course of construction, or amongst cars already delivered to customers. The committee will select one or more of these cars and will compare same with competing cars, continuing their examination as far as they deem necessary. They will, among other things, take the dimensions of the cylinders, will weigh the chassis and carosserie and will assure themselves that all the parts are identical, both in regard to dimensions and material. The manufacturers will, for the purpose of this examination, put at the disposal of the committee the necessary room and workmen.

"The discovery of any fraud through starting a car not of the current type as entered will involve the disqualification of the manufacturer without prejudice to any other penalties which the stewards think fit to inflict.

"The bore and stroke of the cylinders must be the same as those of the cylinders in the current types of the car.

"The race is strictly confined to touring cars, which have to comply with the following specifications: (a) A comfortable carosserie, four seats (tonneau, side entrance, etc.) completely upholstered and painted.

(b) A bonnet identical to that fitted to the current type car. (c) Two lamps. (d) Rigid mudguards covering at least a quarter of the front and back wheels and having a minimum width of twenty-five centimeters. (e) Sufficient number of steps. (f) Spare parts, accessories, tools, inner tubes, tire pump, jack, etc., weighing together at least fifty kilos. Space of at least twelve cubic decimeters must be allowed in the carrosserie for a case to store these accessories.

"The cars will be examined by a committee of coachbuilders. This committee will have the right to exclude any other car they consider not fitted with a proper touring body.

"The two front seats must be occupied by the driver and a passenger, the two back seats may carry ballast.

"The total weight representing the four persons must be 280 kilos. If this weight is not attained, it must be made up by ballast, which must not consist of any parts or provisions or of any article which would be of any use on the car during the race.

"The race will include a team race for three cars. The result of this race will be arrived at by adding the times of the cars of the same team. Only those teams will be placed whose three cars have finished the total distance within the specified time limit.

"The challenge cup will be won by the manufacturer of the car which has finished the distance in the shortest time. A special prize (gold medal) will be presented to the driver of the car making the best time of the cars whose total cubic capacity does not exceed three litres.

What is a Walking Pace?

According to the by-laws of Northumberland, a vehicle proceeding at more than a walking pace must be furnished with two front lights after dark. An automobilist was summoned for having only one of his front lights burning. Thereupon the solicitor pointed out that the by-law was obviously framed with a view to horse-drawn traffic only, in which case the pace would, of course, be judged by whether the horse was walking or trotting. The solicitor asked the magistrates when they would consider a motor going at a walking pace, and when it should be considered as going faster than a walking pace. The magistrates found the riddle too much for them, and dismissed the summons, suggesting at the same time to the County Council that the by-law should be revised.

The Problem of Poultry.

"If one kills a duck, chicken, or other wayfarer from a poultry farm miles from anywhere, no ostensible owner being in sight to whom compensation can be paid, is it ethics to put the fowl aboard for the family stock pot, or leave it on the road for the first tramp or passerby to claim?" is the puzzling question on which a motorist asks opinions.

MEGARGEL IS MUD BOUND

Stalled in New Mexico and Waiting for Roads to Dry—The Awful Conditions.

Percy F. Megargel, who, with Dave Fassett, is criss-crossing the continent in a Reo, is stuck in the mud "until further notice," between Gallup and Albuquerque, New Mexico. At last accounts they were waiting for the ground either to freeze solid or to dry out completely. The former is rather unlikely at this season of the year, for the more rigorous portion of New Mexico winter is now past, and owing to the rainy season now on, it may be weeks before the roads will begin to be passable. Megargel in describing his experiences of the past week, writes in part as follows:

"While we have been through all kinds of weather, and experienced all kinds and no kinds of roads, this 'doby' soil of New Mexico certainly beats anything I have ever come across in my three years of automobile cruising. The soil seems to be impervious to water at a depth of about two feet, and these twenty-four inches are mud of the stickiest kind. Our wheels, when they will revolve at all, carry around on the tires clusters of real estate that would cause many an over officious real estate agent to think we were endeavoring to carry New Mexico back East with us."

The washes, arroyos, gulches, gulleys and ravines between Gallup and Albuquerque are simply uncrossable at this time, the soil at the bottoms being so soft that even after spreading canvas over the mud, the Reo mountaineer sinks until the differential rubs on the canvas. With these conditions, and the sharp 30-40 per cent. inclines to climb on the opposite side of the gulches, and arroyos, it is quite apparent why it is frequently difficult to make more than two or three miles progress per day even with the aid of spade, cable and bunches of Apache and Navajo Indians.

There is absolutely no travel by wagon over these trails and to secure a team to carry gasoline one day recently, Megargel had to walk fourteen miles and then bribe the Mexican teamster until the former had practically purchased the latter's outfit before he would consent to undertake the drive, only to result in his wagon breaking down after plugging nearly eight hours over a stretch of twelve miles and compelling Megargel to carry the precious fuel for the last two miles.

How Widely Witnesses Disagree.

Police prosecutions frequently develop amusing situations, particularly when upon the trial the numerous witnesses lined up in substantiation of the apprehender's testimony and the majesty of the law are put on the stand. One of these came to light in Plymouth, England, recently, in which the offender was charged with "having driven his car at a speed dangerous to the

public." In consequence a boy was alleged to have been knocked down and severely injured. No less than ten witnesses gave testimony for the prosecution, which was to the effect that the car was driven "furiously," "dangerously" and "like an express train" down the street, according to the descriptive powers of the teller. But upon cross examination no two of them agreed on any material point, and particularly as regards the speed which was variously put at fifteen, eighteen, twenty, twenty-five and two hundred miles an hour, this last being most emphatically sworn to by a furniture dealer. The defense brought out the facts that the car was not proceeding more than six or eight miles an hour, was halted within its own length, and that the boy who really thought he was being chased by the prosecuting policeman was more frightened than hurt.

California Club's Many Appropriations.

Radical reforms were suggested and carried out at the annual meeting of the Automobile Club of Southern California, held in Los Angeles, on the 1st inst. The most important of these was to strike the word "dealers" from the constitution, allowing membership to all. It was also decided to reduce the membership fees from \$25 a year to \$1 a month. It was recommended to expend \$275 to repair the Riverside road, extending east from Azusa; to place \$250 to the credit of the automobile school recently established by the club; to purchase a lathe and other equipment; and to expend \$500 or more to place road signs in Ventura and Los Angeles counties. The club elected the following officers: President, William Garland; vice-president, Walter Newhall; secretary-treasurer, Fred Flint, Jr.; directors, William Garland, Charles Welborne, Walter Newhall, M. J. Connell, George Ellis, William Theyer, C. B. Hoppe and Fred Flint, Jr.

Now Blamed for Bible's Advance.

It sounds strange, but the London Bible Society maintains that automobiles have caused the price of Bibles to advance; the Society claims that it is now between the horns of a dilemma of either increasing the price or selling its books at a greater loss, because the cost of leather suitable for bindings has doubled in the past year. Among the causes ascribed are the demand for leather for automobile coats and the craze in America for patent leather shoes.

How They are Evangelizing.

Evangelization with an automobile—literally religion by machinery—has been a method tried in Pittsburg by four young women with success. They are credited with the conversion of 3,000 souls, the result of earnest exhortations from the seats of motor cars. The young ladies save their voices, however, in singing their songs to the religion-seekers. Phonographs do the singing.

WALKER URGES MOTORWAYS

Paints Beautiful Pictures of Future Conditions and Suggests Means and Routes.

Special highways in general for the automobile and an automobile speedway between New York and Philadelphia in particular formed the subject of an address delivered on Tuesday evening last, before the Automobile Club of America by John Brisben Walker, who advanced some very novel ideas.

"Who of the members of this club believes that the intolerable crowding of the streets as it exists to-day will be continued indefinitely in the future?" asked Mr. Walker. "Place an additional 10,000 automobiles on the streets of New York and imagine the conditions. Yet the solution of the problem is as easy as that of the country road. Make up your minds to this fact: Eventually there must be elevated streets with a clear road for automobiles. Men and women will not be content to go up and down the fifteen miles of New York at a slow pace. Sooner or later the demand will be made for a clear roadway with no cross streets, and that can only come by elevating the street itself.

"See what advantages can be obtained by this elevation. In Seventh avenue, for instance, two elevated roadways, one for trucks and the other for cars, and an open subway giving perfect ventilation for a four track electric road and for the use of gas and water pipes and electric wires can be built for not very much more than the cost of our subway. The excavation of the street need not go more than twelve feet beneath the surface. This would require the raising of the cross streets, perhaps three or four feet, but only at the points where they pass over the subway. An elevated deck would be run from the side streets, and the 100 feet of Seventh avenue could be separated in such a way as to keep two distinct currents moving north and south, respectively, and lines for rapid and slow movement well maintained. The improvement of Seventh and Eighth avenues will mean the establishment of costly barriers in the way of such progress. Why should not this club take up these questions now, appoint committees of capable engineers, and bring the subject before the public?"

Then dwelling upon the chief topic of his discussion, a special automobile speedway, Mr. Walker said: "On such a speedway there would be no grade crossings, the surface would be of dustless material and keepers placed at the entrances and exits would collect toll according to the distance traveled. There would be three lines of travel in each direction, for which there should be at least a width of eighty feet while the course should be made as straightaway as possible. A continuous rail would divide the routes for southbound and northbound cars and separate exits would be provided for each. Slow moving machines would be

given the outside path, cars traveling up to thirty miles an hour would be placed next while the mile a minute machines would be next to the rail, it being the duty of the toll keepers to regulate this division of traffic. As a surface material, blue limestone sprinkled with oil would doubtless be found to fill all requirements.

"A highway such as this could be used, not alone for pleasure travel and the speeding of high-powered machines, but for the transportation of passengers between the two cities. The feasibility of automobiles for passenger service has been demonstrated time and again and seldom more conclusively than by the economy test of last fall in which ten passengers were carried several hundred miles by motor bus at an operating cost that could not be approached by the railroads. At a charge of 50 cents per passenger from here to Philadelphia such a road should be self-supporting."

Producing a large map of the State of New Jersey, Mr. Walker showed three possible routes that he had plotted, avoiding large settlements. One starting from the foot of West 42d street, would begin at Weehawken, pass between Hackensack and Passaic, run through the Oranges and then extend in as straight a line as possible to Philadelphia, passing south of Bound Brook and north of Trenton. The other routes would lead across Staten Island, running south of the Pennsylvania Railroad, the more southerly of the two giving access to Philadelphia through Camden.

"Naturally you want to know the probable cost of such an undertaking," continued Mr. Walker. "I believe the construction of the road could be brought within \$6,000 a mile, provided the right of way could be obtained without cost. That would mean for the ninety miles between New York and Philadelphia \$540,000. The yearly sum for maintenance should not exceed \$10,000, and, figuring interest at 6 per cent. on the cost of the road, would bring the annual charges to \$67,400. At less than 400 passengers a day, the road would bring in an income of \$73,000 a year, a comfortable profit on the investment."

In view of the contemplated drastic action against the automobile, Mr. Walker contended that such special highways would soon be essential and urged upon his hearers that they take the initiative in the promotion of the New York-Philadelphia project.

If the plans of the Automobile Club of Minneapolis can be carried out, Minnesota will have one of the finest roadways in the country around Lake Harriet and motorists of that city will rejoice. Provided that permission of the park board can be obtained, an oiled road about thirty-five feet wide and three miles long will be built and in use by the latter part of the spring or early summer. It is proposed that the road shall be exclusively reserved for automobiles during two hours of every afternoon.

CLEVELAND'S MODEL SHOW

Local Exhibition Proves an Eye-Opener—One Exhibitor Invokes the Law.

Cleveland, Ohio, Feb. 21.—The Cleveland Automobile Show may fairly be called a model exhibition, and this in a broad sense, taking into account its size, the adaptability of the building for the purpose to which it has been put, the relation of the cost of the decorative scheme and the effect produced by it, and the tasteful and harmonious grouping of the cars and their accessories.

The Cleveland show, in short, is a beautiful show, one that in its general effect far surpasses all previous local shows, and, taking everything into consideration, seems likely to have set a mark that will not soon be surpassed.

On entering, the visitor is surprised into wondering whether he can really be in Cleveland—soft coal, dust-ridden Cleveland, where everything of lighter hue is quickly changed to a leaden and sooty black, for the central idea of the show color scheme is white, and even at this writing remains white, with a whiteness that is almost startling.

At the first look around one sees overtopping everything in the center of the roof, a huge star of white and blue bunting, outlined in electric lights from which broad streamers of the same colors are flung to the four walls of the building, forming, as it were, a veritable patriotic canopy. The balconies, draped and caught up in festoons of white, have at regular intervals medallions of the different States, these meeting on the two long sides a union shield in the center. This liberal use of the national colors is decidedly noticeable and whether by accident or design, gives the impression that this is truly an "American show" for American cars. Fitting, too, in a way in this city where leaders of steam, electric and gasoline cars are produced.

In the balcony the stands are prettily decorated in white and purple and the line of parts and accessories displayed is fairly representative. One end of the balcony, however, is of exhibits, tiers of chairs rising to the ceiling where the weary visitor may rest and look down on the picture presented below. And a pretty picture it is, too. Crowning each exhibit in the centre is an arc light from which depend four strings of electric lights which meet in a graceful droop the clouded arc light which ornaments the brass corner-posts and on which are blazoned the names of the cars shown within. It is worthy of note here that aside from those of small glass suspended in the centre of the booths there is and entire and refreshing absence of signs, small placards on the cars giving their names and prices. The carpeting of the stands is green and a profusion of potted

plants, ferns, etc., complete an effect that is at once restful and of quiet elegance.

The aisles are broad and clean, and the flat-topped desks with telephones attached furnish the only evidence of business aside from earnest conversations generally carried on in the tonneaus of the big machines.

Of the cars themselves, there is nothing particularly new or startling, the majority having been seen and described at the big shows just ended. The Palmer, an Ohio production, is the only car making its debut at this show.

The only feature of the week thus far was caused by Whitcomb, the local Rambler agent, who located on one of the side aisles and against the wall insisted on departing from the uniform decorative scheme and erected a handsome piece of scenery showing mountains in the background and a winding road up which the Rambler car exhibited threatened to dash. A row of potted plants along the aisle and effective lighting completed what is really an artistic effort, but it raised a howl of protest among unappreciative competitors. Whitcomb was then requested to remove the offending scenery, declined to do so and promptly secured an injunction against the show management, restraining them from interfering with it. The injunction, however, was vacated yesterday when the court was taken over in an automobile to view the unappreciated work of art. It is understood, however, that the show managers will take no further steps, not wishing to make the Rambler man out a martyr to his art, but leave him wedded to it, or at least in possession of it.

The attendance so far has been large and considerable business is reported in sight.

The list of exhibitors and the wares they are displaying are as follows:

Standard Auto Co., Cadillac, Autocar and Packard cars; Harry S. Moore, Stoddard-Dayton cars; Holmes-Booth Motor Car Co., Pope-Hartford and Pope-Tribune gasoline and Pope-Waverly electric cars; T. C. Whitcomb Auto Co., Rambler and Premier cars; R. H. Magoon Motor Car Co., Pope-Toledo and Locomobile cars; Winton Motor Carriage Co., Winton touring cars; Auto Shop Co., Oldsmobile, Franklin and Thomas cars; Royal Motor Car Co., Royal and Columbus cars; White Garage, White steam cars; Ohio Motor Car Co., Waltham-Orient, Buick and Columbia cars; Price Bros. Carriage Co., Baker electric cars; Cleveland Motor Car Co., Cleveland cars; Reo Motor Car Co., Reo cars; Chisholm & Phillips Auto Co., Peerless, Stevens-Duryea and Knox cars; Ford Motor Co., Ford cars; Paxson Motor Co., Wayne, Jackson and Frayer-Miller cars; Palmer Automobile Co., 1906 Model Palmer runabout; G. A. Collins & Son., Akron, automobile tops; Napier Motor Co. of America, Napier cars; F. B. Stearns Co., Stearns touring cars; Gaeth Automobile Works, Gaeth cars; Sprague Umbrella Co., Norwalk, O., Automobile tops; Central Automobile Co., Stud-

ebaker cars; Rauch & Lang Carriage Co., electric stanhope and electric coupe; Walker Motor Car Co., Walker runabouts; McGeorge Mfg. Co., Maxwell cars; Hipp, Reitz & Hall, Moline cars; Columbia Lubricants Co., lubricating oils; Teel Mfg. Co., Bedford, Mass., Teel tire cases, tops, etc.; S. F. Bowser & Co., Ft. Wayne, Ind., gasoline storage tanks, etc.; Pennsylvania Rubber Co., Jeanette, Pa., tires; C. F. Splitdorf, New York, spark coils and plugs; Oliver Mfg. Co., Chicago, Ill., jacks; Never-Miss Spark-Plug Co., Lansing, Mich., spark-plugs; Bassett Presley Co., metals; R. E. Brown, lamps; W. D. Strong & Co., sundries; Collister & Sayle, Prest-O-Lite tanks and sundries; Veeder Mfg. Co., Hartford, Conn., odometers, tachometers, etc.; Badger Brass Mfg. Co., Kenosha, Wis., Solar lamps; Gray & Davis, Amesbury, Mass., G & D lamps; Cleveland Tool & Supply Co., steel tubing; National Carbon Co., Columbia cells; I. Lehman, steering knuckles; Ohio Rubber Co., automobile clothing; Hartford Suspension Co., New York, Truffault-Hartford suspension; Wm. Cramp & Sons Ship and Engine Building Co., Philadelphia, manganese bronze castings; Edmunds & Jones Mfg. Co., Detroit, Mich., E & J lamps; Jones Speedometer, New York, Speedometers, etc.; Strong, Carlisle & Hammond Co., automobile parts; Warner Instrument Co., Beloit, Wis., Warner autometer; Firestone Tire & Rubber Co., Akron, Ohio, tires; Standard Welding Co., automobile parts; Chas. E. Miller, New York, sundries; Homer Commutator Co., commutators; Wm. H. Brown, dust guards, fenders, etc.; Excelsior Spark-Plug Co., spark-plugs; John H. Graham, New York, horns and lamps; C. H. Lodder, wrenches.

Chicago to Enforce Wide Tire Law.

After considerable vacillation and entirely contrary to all expectations, Chicago's city fathers have revoked the order which has served to suspend the enforcement of the wide tire ordinance passed two and a half years ago and which was to become effective on Jan. 1st of the present year. Instead of doing so, it was held up by a stay and it was generally considered that the stay would be both indefinite, and the last to be heard from the ordinance, as no attention had been paid to its provisions. In consequence, the revocation of the order came as a surprise, creating as it did with one blow, thousands of offenders who have never altered the narrow tires of their wagons. The actual enforcement of the ordinance by the police will doubtless lead to interesting developments.

How One Customer Got his Car.

From now on, the air will be full of that oft told tale in which the irate customer and the delayed delivery will form a daily incident of the agent's life. But there is at least one buyer of a 1906 model who will not have to cool his heels and stifle his

impatience as balmy weather comes on apace to make every day of waiting doubly exasperating. He is E. S. Straight, of Pittsburgh, and he uses his car in business. He had ordered a new Autocar and he wanted it on the spot. Learning that a carload of machines had arrived for the agent of the car, he did not wait to be informed, but like his name went to the agent, laid a check for the balance of the price on his desk and told him he was going out to the freight station to get one of the machines himself. As an earnest evidence of his intention he carried a coil of rope for towing the machine and was accompanied by a strapping big friend. They helped unload the machines, towed their choice back to the garage, saw it fitted up and rode off in it in triumph.

For Speedway in National Park.

The county commissioners of Pierce county, Washington, are co-operating with the members of the Chamber of Commerce of Tacoma, in a movement to build an automobile track from the city limits to the Mount Ranier national park. The speedway contemplated will follow the main course now pursued by travelers to Longmire Springs and Paradise Valley, and the road up the Nisqually River valley will be utilized. It will be widened along the most of its route, and its many crooks will be straightened. At Eatonville the automobile road will deflect from the present road across the Mashel mountain, and a new road built that will strike the Nisqually river near the mouth of the Mashel and follow up that stream to Alder, on the Tacoma & Eastern Railroad. Including all the advantages derived from the old road to the mountain, the automobile track, the commissioners estimate, will cost \$40,000. The commissioners propose that forty or eighty business men of Tacoma be found who will contribute this money, and be repaid by Pierce county in annual installments of \$10,000.

Oldfield to Forsake Footlights.

Barney Oldfield, who has been doing a turn on the New York stage in the "Vanderbilt Cup," will forsake the footlights after this week to begin his spring round of the tracks. He is not, however, through with the stage, as he signed with the theatrical managers for two years. This season Oldfield will drive a new Peerless racing car of ninety horsepower and, of course, it has been christened the "Green Dragon." His first race will be at Savannah, Ga., where he is booked for March 3. From Savannah Oldfield will go to Atlanta, Birmingham, New Orleans, Houston, Dallas, San Antonio, Los Angeles, San Francisco, Portland, Spokane, Butte and Minneapolis, returning to Minneapolis, for a proposed 24-hours' race at Washington Park on May 30. Charles Burman will, as last year, drive against Oldfield sometimes, using the stripped Peerless.

The Fight Against Fanatical Freylinghuysenism.

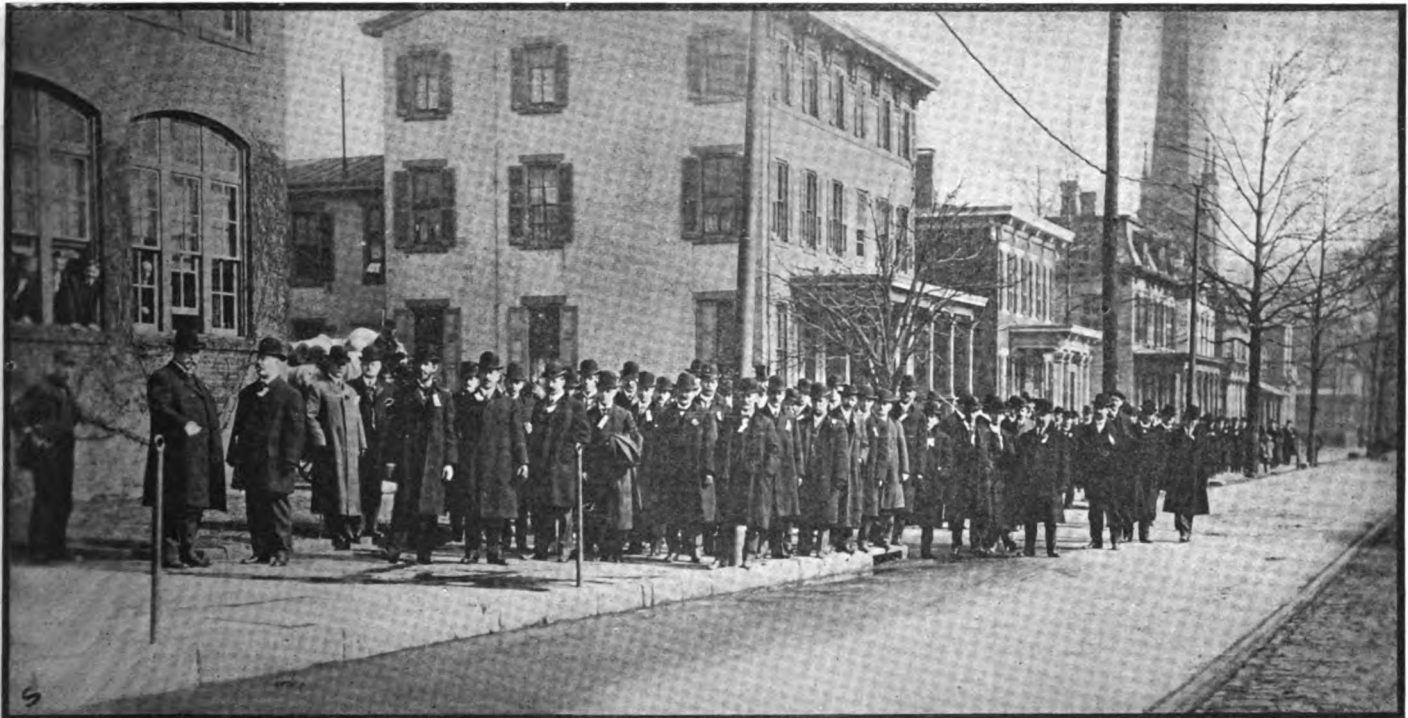
Probably never since automobile legislation was first proposed, was there such a battle for and against a bill as was waged on Tuesday last, 20th inst., against the Freylinghuysen bill now pending in the New Jersey legislature. The occasion was the public hearing before the Senate Judiciary Committee.

The Jackson bill, which would require automobiles to be geared so that they cannot exceed a speed of 20 miles per hour, was also due for an airing, but it received

and gave over its chamber for the hearing. The large gallery, in which a scattering of ladies occupied the front seats, was full to overflowing. Every seat, every aisle, every window of the main floor was crowded. The farmers had come early and avoided the rush. They had the choicest positions, if positions counted for anything. But the automobilists were largely in the majority. They had come from all parts of the State and from New York and Philadelphia. The latter city sent down a special train of four

equally divided between the "fors" and the "againsts," Mr. Scarritt pleaded that the "againsts" be given 15 minutes in which to answer their opponents, but he failed to carry his point.

Mr. Reed then launched his thunderbolts. He read a long resolution of protest passed by the Union County Association. In substance it recited that the roads were for the use of all men and that any law which required licenses and sought to set up other discriminations, was contrary to the consti-



THE AUTOMOBILE FORCES ENROUTE TO THE SCENE OF THE FRAY.

scant attention. The measure fathered by Senator Freylinghuysen was the real cause of it all. Among other drastic provisions it seeks to set up a Commissioner of Motor Vehicles and to vest him with autocratic powers, to impose a per horsepower tax on both the man and his machine and to require photographs and examinations; to tax non-residents \$1 per day and dealers \$50 per year; to forbid the use of anti-skidding devices on tires and to make licenses revokable by any magistrate or justice of the peace.

The Associated Automobile Clubs of New Jersey had aroused the State and adjoining States as they never had been aroused before and the agricultural and other anti-automobile organizations and elements had performed similar service in behalf of the bill. The result was that the State House at Trenton was crowded practically to its very doors. The little Senate chamber would not have held one-twentieth of those who attended. Perforce, the Assembly suspended its sitting

carloads. It was a unique gathering of chin whiskers and Van Dyke beards, of merchants, lawyers and horny handed sons of toil.

The speakers against the bill had been marshaled for conference in an ante-room previous to the hearing. Winthrop E. Scarritt did the marshaling. He did not want them to "overlap" in their arguments and suggested that they agree to a definite end and to present their views in short, sharp, crisp fashion. They conferred and really agreed to nothing and when Scarritt delivered his speech it was longer and fuller of rhetorical flights than any of the others. Scarritt was a volunteer worker, several of the others were there because they were paid to be there and to speak. Ex-Senator Charles A. Reed, who represented the Automobile Association of Union County, and who opened the argument, was one of these. When Chairman Hillery, of the Judiciary Committee, announced that two hours and a half would be given to the hearing, the time to be

tution. The resolution also protested against arrests without warrants and against trials by any court lower than Courts of Common Pleas. Mr. Reed then sounded the keynote of the opposition to the Freylinghuysen bill—that the existing law, if enforced, is sufficient for all purposes. He admitted that it was difficult of enforcement and when asked by Chairman Hillery what suggestions he had to offer, he stated his faith in the revocation of licenses. He warned his hearers, however, that taxation for revenue only, as in taxing one class of vehicle for alleged damage done the public roads, was surely unconstitutional and would undo the Freylinghuysen bill, if it were passed.

The applause when Mr. Reed sat down gave a clue to the strength of the automobilists present. But it was as nothing to that provoked by the quick wit of the speaker who followed him, W. H. Spear, representing the Hudson County Automobile Club. Mr. Spear's voice filled the room. He said that the car was no longer merely

the vehicle of the rich; it was now the vehicle of the middle classes and had come to stay. It was an evidence of progress such as was the railroad and the trolley car. In the State of New Jersey it represented a valuation of \$50,000,000 from which the Freylinghuysen bill would practically withdraw the State's protection and leave it at the mercy of any prejudiced justice of the peace, whose fairness, when automobiles are involved, as open to grave question.

"There are automobile hogs; I admit it," went on Mr. Spear, "and they attract attention solely because they are the exception and not the rule (Applause) just as the drunken man on the street attracts notice because he is unlike the great majority of those who walk the streets. It is unfair to visit on the many the sins of the few. But



"AG'IN THEM AUTOMOBEEELS, B'GOSH!"

at that, the automobile hogs are not the only men who violate the speed laws of the State."

"What other vehicle can travel as fast as an automobile?" interrupted Senator Freylinghuysen at this point.

"The trolley car," came the answer as quick as a wink and as clear as a bell.

The automobile part of the assembly fairly thundered its applause. Its cheers had scarcely subsided when they had occasion to break out again with almost redoubled force.

"I thought the complaint in your city was that it takes a trolley car half an hour to go two blocks," rejoined Senator Freylinghuysen.

"No," replied Mr. Spear. "It does much better than that, and yet no gentleman has arisen in this legislature and introduced a bill to require motormen of trolley cars to be examined or registered."

When the applause had subsided, Mr. Spear proceeded to attack the constitutionality of the bill and to urge that the existing law be given a fairer trial.

After Mr. Spear came Winthrop E. Scarritt, "one of the noblest Romans of them all." Most of his argument was read from manuscript and was delivered with more

than the usual number of dramatic pauses and drawls and declamatory effects peculiar to the speaker. He said he spoke as a resident and as a tax-payer of New Jersey and also, by authority of President Morris, for the 1,000 members of the Automobile Club of America, many of whom reside in New Jersey. Mr. Scarritt's general argument was sound and well founded, but specifically he seemed chiefly concerned with the reduced speed limits set by the Freylinghuysen bill. He quoted Judge Cooley's famous decision that the horse has not superior rights on the road and cited the superior rights which Senator Freylinghuysen would create for the animal. The bill, he said, sought to accomplish by indirection what the legislature dare not do directly—drive the automobiles from the road. He declared that it did not have back of it the public sentiment of the State without which any law is a dead letter. He had also consulted a number of eminent attorneys and all agreed that the bill, if passed, would not stand the constitutional test. He then pitched into a long assault on the speed limits provided for. "I say frankly," he said in the course of it, "that if this Freylinghuysen bill becomes a law, then I shall break the letter, but not the spirit, of that law every time I take my car out. A good team could go faster than eight and a half miles an hour. There are 14,000 automobiles in this State, and if you pass this bill, I warn you now that you will force 14,000 of the best women and men in this State to become lawbreakers."

Mr. Scarritt repeated this a couple of time, each time more slowly and with greater deliberation and vehemence. He said he did so after calm thought in his "library at midnight," in which place and at which hour he had prepared his argument. He urged that the present law fully covered all points and with more fine emphasis, suggested that it were wise as justice suggests that a "thousand guilty men escape than that one innocent man should suffer," and wound up with a fine rhetorical flight in which the stars and stripes and Washington crossing the Delaware soared high.

One of the most effective and impassioned speeches against the bill was delivered by Charles Thaddeus Terry, counsel of the National Association of Automobile Manufacturers. Mr. Terry has a deep, full voice that carries far without straining. He did not indulge in theatrics, but in calm, almost heart-to-heart tones, he reviewed in sequence the more drastic features of the measure and pointed out their illogic and unconstitutionality. He suggested that the nine months' trial accorded the present law scarcely had been enough to condemn it.

Robert V. Lindabury, of Newark, who said he represented no organization and spoke only for himself and other unattached automobilists, also spoke. He stated that he was a farmer and expected some day to use motor driven agricultural implements, and pleaded that the future be not

weighted because of the present faults of a few sinners. Other speakers against the bill were Edward Robert Walker, representing the Mercer County Automobile Club, Adrian Riker, representing the New Jersey Automobile and Motor Club, E. J. Applegate, of Cranbury, Edmund Wilson, of Red Bank, and Robert Shaw, of Paterson, and R. G. Betts, president of the Federation of American Motorcyclists. The latter said the bill would impose greater hardships on motorcyclists than on automobilists and pointed out some of them. The motorcyclists' representatives were rather bitter at the treatment accorded them by the automobilists' "steering committee." None of the automobilists mentioned motorcycles in their arguments and despite tacit understanding, used up every moment of time accorded the opposition.



TWO MORE OF THE "ANTIS."

It was only because of strong personal pleading with Chairman Hillery and Senator Freylinghuysen that Mr. Betts was accorded three minutes in which to argue for a "square deal" for motorcyclists.

Clarence Case, a lawyer of the North Branch Anti-Automobile Association, was the first speaker in favor of the bill. He recounted the alleged dangers and iniquities of automobilists and drew a great round of applause from "his side" when he said that only that very day he had clipped from a morning newspaper reports of two accidents due to automobiles. The clippings, however, proved boomerangs.

"May I speak a word?" interrupted ex-Senator Reed, mildly. "Of course," assented Mr. Case. "I only want to say," continued the Senator, "that one of those accidents was caused by the breaking of the axle of the automobile, and the people hurt were the automobilists themselves."

At this the automobile side of the house roared with delight, and Mr. Case tried again.

"A gentleman in this room," said he, "an ardent autoist and an opponent of these bills, has told me that there is one road near Newark that he never uses because

every hour of the day at least three automobiles pass over it at the rate of forty miles an hour."

"What's the name of that road?" asked Mr. Lindabury. When it was given Mr. Lindabury rejoined: "That's odd. My wife and daughters drive their horses on that road twice each day and I've never heard of those three automobiles."

This "baiting" of the anti-automobile speakers was a feature of the afternoon, the sallies being invariably followed by tremendous applause, laughter and cheering. At one stage it became so frequent and so great that it appeared that the "antis" would be laughed out of the room. Senator Freylinghuysen saw the danger and finally protested rather warmly at the repartee and suggested that common courtesy be accorded the speakers.

The "antis" were not very rich in effective oratory, the best address being made by John J. Murray, of Hudson county, whose appearance suggests William J. Bryan. At the outset his argument was thoroughly Bryanistic, too. It sounded for all the world like the reading of a typical editorial from a ranting yellow journal. The shuddering women and weeping children who remained indoors because of their fears, the automobilists who cared not for God, man or devil, and all that sort of thing were vividly pictured. Mr. Murray suggested that unless something be done, the farmers may rise in their might and demand that automobiles be kept off the roads entirely. He said they had given the State the right of way through their lands and believed that if the roads that resulted were permitted to become menaces to their lives and liberties, that the courts would restore their rights or their lands to the farmers. After a lot of such flubdub, he countered heavily on the automobilists by reading one of their circulars which gave 17 reasons why the bill should be opposed. He read each reason and pointed out that of the 17, not more than two of them had been specifically referred to by any of the automobile advocates, which really was the case. Mr. Murray also dwelt significantly on a clause in the circular that stated that money was needed to assist the campaign.

"You all know what money means in connection with legislative affairs," he thundered.

He also made the point that to exempt automobilists from arrest without warrant was in the nature of the class legislation against which they were protesting.

E. C. Hutchinson, State Highway Commissioner, who spoke in sing-song tones, said he had no interest in special legislation, but he did want to keep the roads in repair and cared not where the money came from so long as it was forthcoming. Most of the damage was caused by spikes or chains on automobile tires and not only was ninety per cent. of the damage caused by non-residents, but ninety per cent. of the accidents; ninety per cent. of the requests for

road repairs comes from non-residents also. He thought they should be made to pay for it and said he believed most of them were willing to do so. As evidence, he read a letter from R. Fulton Cutting, of New York, saying that if the road between Ramsey and Mahway, on the road to Tuxedo, is improved, the residents of Tuxedo would help bear the expense.

John Kipp, of Morristown, favored the bill. He read a letter from Vice Chancellor Stevens condemning reckless automobilists and deploring the damage to the State's good roads.

Senator Jackson, of Middlesex, supported the bill bearing his name, declaring it to be fair toward all classes and all interests and adding that as no one had said a word against it, it should be substituted for the Freylinghuysen measure.

President Voorhees, of the State Board of Agriculture, advocated the Jackson bill, declaring that he reckless use of horseless vehicles hurt farmers' business and destroyed the happiness of farmers' homes.

Others who urged anti-automobile legislation were Charles Barton, of Camden, who said respecting the enforcement of the present law, that Camden county had tried it and failed, having figured that to properly do so would entail an annual expense of \$78,000. W. J. Tyrell, of Burlington and Charles Collins, of Moorestown, also spoke.

May Tax by Weight, not Horsepower.

Senator Irving L'Hommiedieu's bill imposing a yearly tax of one dollar per horsepower upon automobiles, and a two dollar registration fee, has been amended, changing the basis of the tax from horsepower to weight. In its amended form the measure fixes a flat rate of fifty cents for each 500 pounds or major fraction. As the changed bill is more within reason and is endorsed by the Automobile Club of America, says the gentleman from Orleans, it is believed that it will pass. By the provisions of the bill the proceeds of the tax will, as provided for in the original form, revert to the State engineer for the cars and maintenance of the improved highways of the State.

Kentucky May have County Licenses.

All that is now needed to make Kentucky a replica of Missouri is the vote of a majority in both houses of that legislature, and the signature of the governor. Representative Frazier introduced a measure requiring automobilists to take out licenses in every county of the State through which they pass and to carry only the number of that county while in it. The bill was referred to the house committee on railroads and last week was reported favorably.

To Amend Maryland Law.

Representative Brown, of Somerset, has introduced a bill in the Maryland legislature which changes the existing law so as to transfer the custody of the registration lists and places the collection of the fees in the hands of the comptroller instead of the

secretary of State. Owners are required to pay one dollar annually, instead of one dollar for a perpetual license, and half the fines imposed go to the informer, which ought to make some rurales independently wealthy. The speed limit has been increased from ten miles to twenty miles in the open country.

Chicago Hears of New York Pirates.

Via Chicago comes the news that as a result of some nood-natured bantering over a special design of automobile shown at Madison Square Garden during the recent show, ten young society men in New York have formed the Pirate Club. Orders have been placed for cars numbered from 1 to 10, and at a dinner to be given in the Hotel Astor, May 31, these will be drawn by lot by the "Pirates." There are to be three officers in this unique club—the big chief buccaneer, little chief buccaneer and keeper of the padlock of the treasure chest. The three men who drive their cars fastest and best at the Empire City race track course June 2 will win these offices. Temporary officers have been elected to manage the affairs of the club until the selection race is held. Each member will pay \$3,500 for his car. Names, unfortunately, are missing.

Atlantic City May Open on Easter.

Atlantic City is planning to start the ball rolling in the East by giving a race meet on the beach during the Easter holidays. The Atlantic City Automobile Club, which is promoting the affair, gives promise of sufficient events to try out the 1906 model stock cars beside several events for racing cars. Although the boardwalk city's beach may not be as fast as Florida's strand, some good time, nevertheless, has been made, the Ford scoring a mile in 38 seconds.

The Gliddens Reach Calcutta.

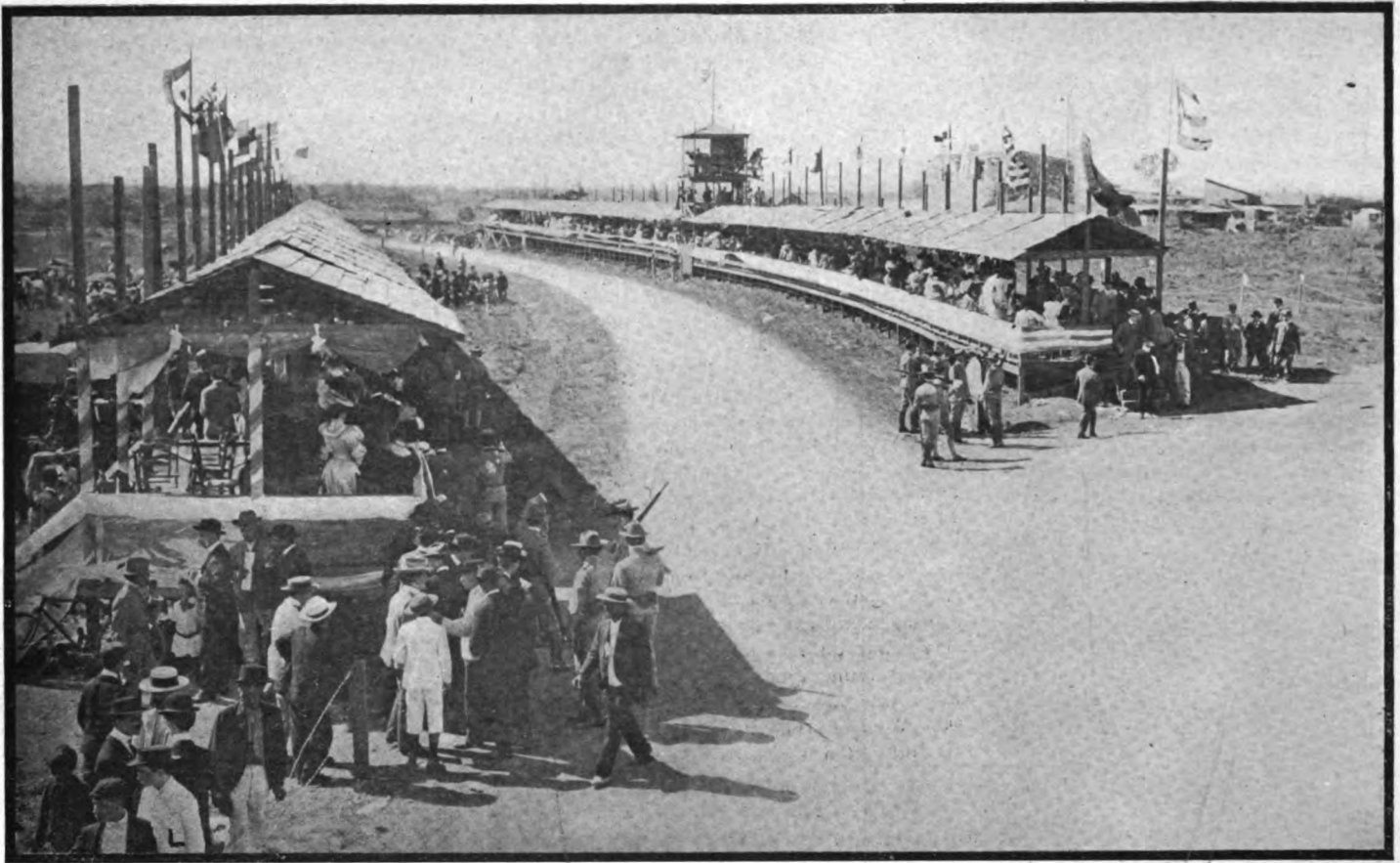
"Around the World Glidden," known in Boston and private life as Charlie J., who, accompanied by his wife, is making a leisurely automobile tour around the world, added 4,405 miles in India to his total mileage. They arrived in Calcutta, Jan. 1, after completing the India tour. So far the Gliddens have visited 27 countries and have covered 29,505 miles on their trip.

Doctors Dominate Denver Club.

At its annual meeting the Colorado Automobile Club, of Denver, elected these officers for the ensuing year: President, Dr. F. L. Bartlett; vice-president, Dr. J. W. O'Connor; secretary, Dr. W. H. Bergtold, and treasurer, Louis Searing.

Date Set for Tourist Race.

It has at last definitely been decided to hold the Tourist Trophy race, of the Automobile Club of Great Britain and Ireland, on Thursday, September 27th. The Isle of Man has been selected at the ground for the conflict.



STARTING AND FINISHING POINT OF THE CUBAN ROAD RACE.



WAITING FOR THE RACERS TO PASS—A TYPICAL CUBAN VILLAGE.

ABOUT THE CUBAN ROAD RACE

Result Was Disheartening, but Cuba Wants More—The Preparations and Cost.

In several respects it was too bad that Cuba's second annual "grand international cup race" should have turned out the fizzle it did. One was because it was not the fault of the natives of the island republic. All Latin speaking people are brim-full of enthusiasm, are good sportsmen and when it comes to paying for it their hands are deep in their pockets almost before the word for monetary aid is given. A proof of this was the elaborate preparation Cuba made for its race. The municipality of Habana appropriated \$7,000 to sprinkle the course, which was 54.49 miles long, with a mixture of crude oil, asphalt and water; the Cuban government expended \$30,000 to complete the road in time and in addition to this, the local automobile association spent nearly \$15,000 on the tournament, which went for paying expenses, entertainment, building grandstands and the like. Then the government further interested itself to the extent of providing thousands of "rurales" as Cuba's paid soldiers are called, to police the course, and issued a manifesto to the effect that if an animal of any description was found on the course during the race it would be instantly shot

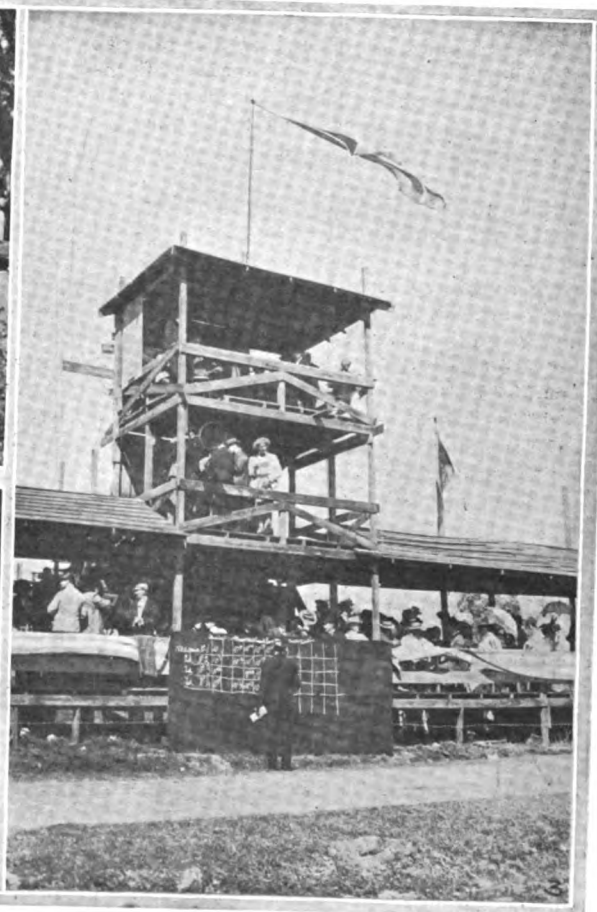
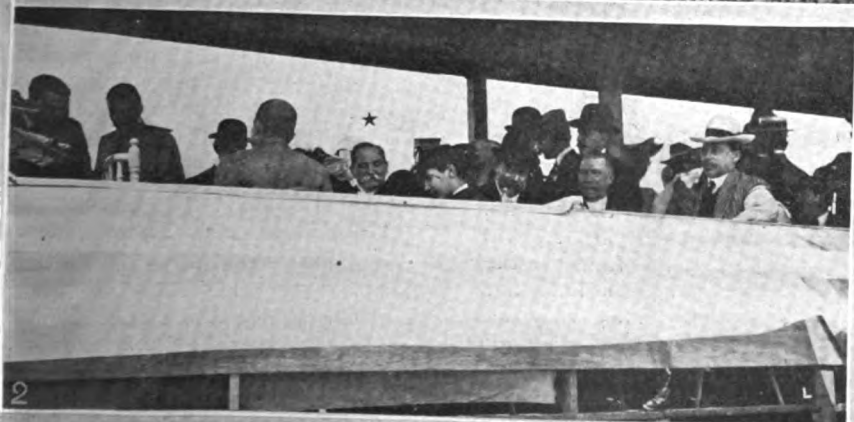
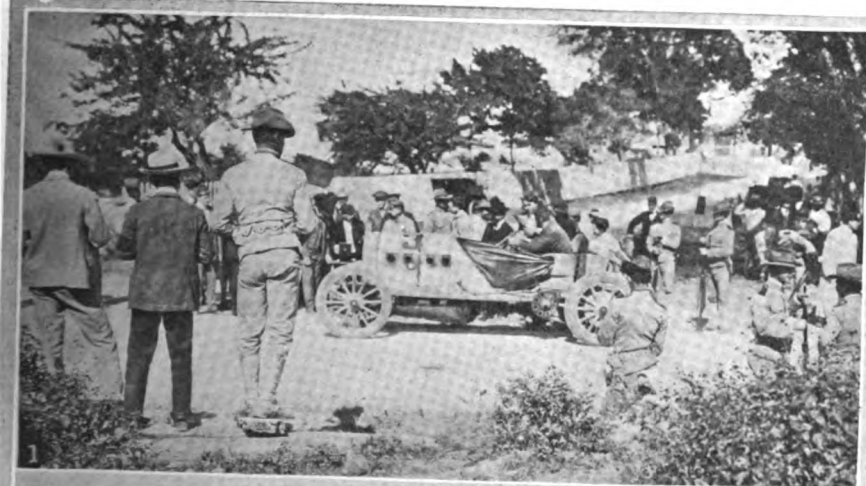
without ceremony. All this was not done for advertising or business purposes, as has been the case in other tournaments, but

merely for the sake of the sport, which needs no advertising.

There are three hundred and sixty odd



DEMOGEOT AT THE WHEEL.



1. HOW THE COURSE WAS GUARDED. 2. PRESIDENT PALMA IN THE GRAND STAND. 3. THE OFFICIAL STAND AND CRUDE BLACKBOARD.

automobiles in Habana and these all were chartered weeks before the race at fabulous prices to convey the natives to Camp Columbia, the starting and finishing point. On the day of the race there was scarcely a person on the streets of the metropolitan city of the island—they had all gone to Columbia.

As told in last week's Motor World there were only four starters in the 218-mile contest and before the second lap two had been eliminated and one of the remainder was so hopelessly behind time that he dropped out. Demogeot, the victor, is a native of France, and has for several years been in the employ of the Darracq company, where he played the part of understudy to Hemery, until that peppery Frenchman was deposed as head of the Darracq stud of racing cars at Florida for insubordination to the racing officials. Then Demogeot was put in charge and forthwith blossomed out as an intrepid driver—Hemery's equal if not his master—by driving two miles in less than one minute and later winning the Cuban event.

If Vincenzo Lancia, hero of the Vanderbilt cup race, "gentleman, scholar," and magnificent driver, failed to stay in the running he did not diminish his popularity; instead he was idolized for his humanity. When his chances of winning the race looked most roseate, the dashing Italian suffered a twist of fortune that might or might not have put him out of the running. While going at full speed over a railroad crossing his mechanic was shaken off the car. Instead of going on, Lancia thought more of the welfare of his helper than of the glory of winning a race, and he stayed by the injured man and procured medical assistance. It takes a real man to do the good Samaritan act during an automobile race.

Cedreno, the other Italian driver, miscalculated the centrifugal force generated by taking a curve at high velocity and thus he came to grief, overturning his car, and suffering bruises, as did also his helper. Bernin, the other driver, was going well until a punctured tire ruined his chances of overhauling the speeding Demogeot in front. President Palma, of the young republic, was the center of attraction in the royal box in the grandstand. He was surrounded by members of his family and dignitaries high up in Cuba's military and political officialdom. He proved an interesting spectator and a good sportsman, remaining at the course, even after all but one of the cars had been discommissioned.

If there is a race next year, the committee states that it would like to see the foreigners compete, but that if they do not there are enough wealthy men in Cuba to furnish the fastest cars in the world, and who are willing to pay for the sport. Lancia and Cedreno and their host of mechanics arrived in New York on Tuesday. Lancia will remain in the city a few days before sailing for "Sunny It." Demogeot is still in Cuba.

WHY NOT FREE ALCOHOL

Opponents of the Federal Bill have Their Innings—Additional Information Desired.

Opposition interests had a hearing before the House Committee of Congress on Ways and Means, on Tuesday last, when they were given an opportunity to present arguments as to why a bill providing for tax free industrial alcohol should not become a law. The large delegation of manufacturers and employees who gave testimony were practically all representatives of wood alcohol interests and it was plain that their chief motive was self-preservation.

For instance, Henry J. Pierce, president of the Wood Products Co., of Buffalo, who was the first and principal speaker, characterized the plan to remove the tax from grain alcohol as "purely selfish" and added that it would annihilate or cripple the wood alcohol industry, which represents an investment of many millions of dollars, employs thousands of men and affects the welfare of at least 100,000 persons. His arguments were entirely along this line, as were those of Austin Farrell, representing various iron and lumber interests in Michigan, who said it was merely a question of self preservation. E. B. Stevens, chemist of the Buffalo concern, reviewed the history of denaturized alcohol in England, France and Germany.

M. D. Bubb, president of the Association of Manufacturers of Wood Alcohol, testified that there are eighty factories in New York and Pennsylvania producing millions of gallons annually, while a representative of the Ashland Iron & Steel Co., of Ashland, Wis., said his company had \$1,500,000 invested in plants and timber lands. New England wood alcohol interests were also represented, beside which there were numerous New York, Pennsylvania and Michigan delegates. Last, but not least, there was a delegation from the W. C. T. U., but just what their purpose was in attending the hearing was not made plain and they were promised an opportunity to be heard later.

Since the close of the hearing in favor of the bill, the matter of free alcohol has come in for considerable attention at the hands of the House generally. Prior to these hearings, the discussion of the subject had been very largely academic in tone—there was a feeling that the agitation was primarily for educational purposes with a view to legislation in the future, rather than in the hope of securing any immediate results at this session. This view has undergone considerable change since the conclusion of the hearings, apparently as a result of the unexpected impression made by the testimony then offered. It was conceded at the time that the arguments

presented had been exceptionally well prepared, and that in many ways the occasion was much in advance of the ordinary Congressional hearing. The impression made, however, seems to have been of greater depth even than had been supposed.

Especially impressive was the testimony to the effect that alcohol could be employed for running engines where other fuels are now employed, and the possible result that might thereby be produced on the prices of cereals which now command relatively unsatisfactory returns. The diverse, and to many of the members, the new uses to which alcohol could be put, together with the experiments of the members of the Department of Agriculture and the testimony of representatives of various industries, has caused many of the members of the House to give the matter considerable more thought and attention than is usually accorded any subject of proposed legislation. On top of this was the testimony as to the injurious effects of using wood alcohol.

Further evidence is desired on two points in particular—the possible effect on the revenue of removing the tax, including the question of fraud, and the extent to which the process of denaturizing grain alcohol would cause a demand for wood alcohol and would thereby eliminate the claims of danger to that industry. Any light that can be shed on these questions will doubtless meet with the consideration of the members of the House. While the committee does not, so far as known, accept the idea that the present system of taxation should be maintained merely to keep in existence the wood alcohol industry, further support would undoubtedly be gained if it could be shown that the present wood alcohol product would be largely demanded for use as a methylator. Extreme claims have been made to this effect, but it is considered that no such demand would be likely to make itself felt in the near future. Prof. Munroe, in his testimony, showed that 12,000,000 gallons of wood alcohol were manufactured in 1904. This would require 600,000,000 gallons of grain alcohol to consume it, though Prof. Munroe further thought that the amount likely to be used and the demand for wood alcohol in new industries would take care of the wood alcohol interests. On the whole, it does not at present appear impossible to pass a bill, at least modifying the present situation as to industrial alcohol, through the House at this session, but what would become of it in the Senate is a different question.

Classes them with Horse Thieves.

Automobilists and horse thieves are considered in the same class by the Lake County Protective Association, which was formed in Indiana last week. The association plans to do two things at one time—rid the State of horse thieves and put violators of the automobile speed laws behind bars.

MORE MARKED INNOVATIONS

Sponsors of Revolving Cylinders Enlarge on that Idea and Some Others.

Following their successful evolution of a type of vehicle all their own in connection with a form of motive power likewise distinctive, the builders of the Adams-Farwell car have shown that their system is as readily adaptable to standard practise as any other by adding a touring car of the con-



ADAMS FARWELL MOTOR.

ventional type to their line which for 1906 comprises several types.

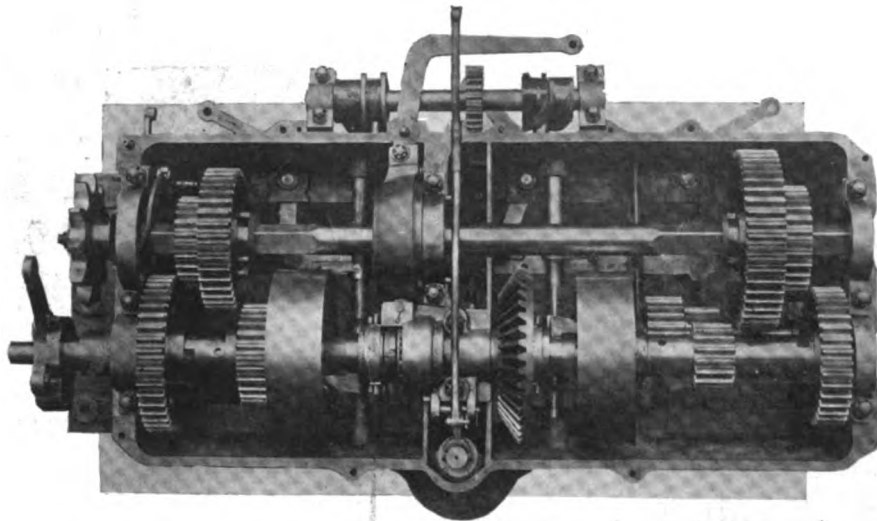
That is, to all appearances, the car is of the usual touring type, though investigation proves the contrary. Its chief feature is, of course, the Adams-Farwell revolving, air-cooled motor which in this instance is built with five cylinders. Having achieved success with the three-cylinder type, one of five cylinders was built early last year and experimented with constantly and the result has been its adoption as the standard equipment of the heavy car for 1906. The advantages accruing from the increase in the number of cylinders include the elimination of vibration, as well as of the dead center, thus producing a constant, even torque and rendering slow motor speeds possible.

As in the previous types, the complete power plant is placed just forward of the rear axle between and over the driving wheels, thus giving the car plenty of clearance. So far as the construction of the cylinders, pistons and connecting rods is concerned, this does not depart from standard practise except in the system of air cooling flanges. The cylinders are cast separately and machined so as to fit together on a cast steel bottom flange and a bronze top flange. The pistons are provided with five rings and are equipped with the usual wrist pin and steel connecting rods, except that the latter center at a common point on the crankshaft round which the entire engine revolves, the functions of the motor itself being those of the ordinary four-cycle type. The cams for operating the valves are also placed at this point.

A distinctive feature of the motor is the use of both variable inlet valves and variable compression in order to regulate the amount of power developed. The inlet valves always pass the maximum charge, but when running light, the valve is held

open for a certain length of time and causes some of the mixture to be returned passing it on to the next cylinder, whereas under full load, the valve admits the entire charge and immediately closes. This method of control has been brought to a point where it permits of an unusual degree of flexibility in operation, making it pos-

ports uncovered by the pistons, permitting the escape of the high initial pressure against baffle plates which effectually deaden the noise. An automatically governed timer advances the spark in proportion to the requirements of the load and at the same time lengthens the period of contact as the speed advances, thus saving



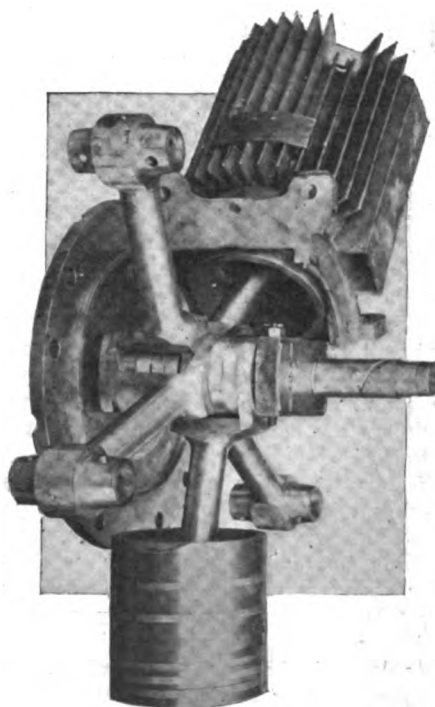
ADAMS-FARWELL TWIN CLUTCH TRANSMISSION.

sible to pass instantly from no load to full load. The gas is accordingly never throttled and as the valves are closed by centrifugal force, their action is always proportionate to the speed of the motor. Light steel wire springs are employed to close the valves in starting and at slow speeds.

Some of the advantages of the Farwell motor consist of the fact that it is without parts usual in others, such as its lack of gaskets or packed joints. It also dispenses with a muffler entirely. The latter is accomplished by the provision of auxiliary

current at low speeds. But one coil is used. In place of the usual float feed for the carburetter a gasoline well is provided and supplied by a small pump automatically controlled by the motor itself.

The transmission of the new type of car is itself entirely new and like the motor, very novel. It is of the sliding gear variety providing four forward speeds and reverse, but upon examination will be found to differ radically from the usual mechanism of the kind. In the first place it has two independent clutches, one of which controls the reverse, first and third speeds, while the other operates the pinions of the second and fourth speeds. The driving shaft, supported on Hess-Bright ball bearings at the ends and in the center by a Timken roller bearing, is operated through bevel gears attached directly to the motor itself as may be seen in the view of the latter from below, the motor itself being mounted directly upon and at the center of the gear box. The male members of the clutches are keyed to this driving shaft, as is also the starting lever ratchet, while the female members are secured to bronze bushed loose sleeves which turn freely on their shaft. To the sleeves on the left as shown in the accompanying illustration are keyed the pinions of the first and third speeds, and to the right those of the second and fourth speeds, the gears for the reverse being on a separate shaft. The driven shaft is supported on three Hess-Bright ball bearings of generous dimensions and is squared at each end to receive the sliding members of the various speeds in the order already referred to. The upper part of the transmission case is a heavy bronze casting which also forms the base of the motor, the stationary crank shaft being



"INSIDES" OF THE MOTOR.

keyed in the central hub in this casting. Aluminum covers enclose it both top and bottom, the under one acting as an oil pan.

The system of speed change control is unique in that an idle set of gears may be engaged before disengaging the clutch from the speed below or above and in the majority of combinations the idle gears are out of mesh altogether. The control consists of two short levers extending horizontally from the steering tube and just under the wheel, the left hand lever actuating the reverse, first and third speeds and the right hand the second and fourth. The final drive is by means of a single chain. The car is usually started on the second speed, the transmission permitting of quick forward and reverse movements without the necessity of sliding gears every time—a great convenience in traffic. Another great advantage is that there are in reality two independent transmissions, either of which will run the car should the other be damaged. From the foregoing it will be apparent that the entire power plant is mounted upon the same base providing an excellent means for securing and maintaining alignment. The cylinder dimensions are 5x5 inches and with the maximum compression of 90 pounds to the square inch, the motor develops 40 to 45 horsepower.

For convenience in entering the driving seat, the steering wheel with all its attachments is made to tilt to one side at such an angle that is possible for the occupant of the off seat to readily control the car in an emergency, pedal brakes being provided on each side. Thirty-four-inch wheels with 4½-inch tires front and rear are used, the wheel base being 108-inches. With the usual equipment this leader of the Adams-Farwell line lists at \$3,000.

More Gasolene Railways in Prospect.

A suburban motor line from St. Joseph, Mo., to some place thirty or forty miles east of that city, is to be promoted by the Real Estate Exchange of that city, if the committee appointed to look into the feasibility of the matter reports favorably. It is estimated that the line for a gasolene motor system can be built at a cost of \$20,000 a mile. The equipment, plant, rolling stock and additions will cost \$3,000 a mile.

Several Maryland capitalists are behind a scheme to build an "automobile railroad" from Tolchester Beach, the summer resort on the eastern shore of the peninsula, to Chestertown, the nearest Pennsylvania railroad station. A charter will probably be asked for this week. The men interested in the project are Alva T. Lamkin, W. G. Evans, J. D. Bacchus, T. D. Bowers, J. M. Sides, W. B. Cooper, W. W. Hubbard and Fred G. Usilton.

A motor line from St. Joseph, Mo., to Highland, Kan., is being projected by the St. Joseph & Grand Island Railway Co. Gasolene cars similar to those in use on other suburban roads in the West will be employed.

Features of a Duchess's White Car.



Aside from the quantities of beauty of line and elegance of detail, the most noteworthy feature of the touring bodies of this year is their capacity: a capacity which, while allowing for each individual passenger a greater amount of room than has ever before been allotted in the automobile, at the same time permits of carrying an amount of luggage which is truly surprising when considered in the light of the machines of a year or two ago. An excellent illustration of this attribute of the present prevailing styles, is here presented in a view of a White demi-limousine which has just been sold by the London branch of the White Sewing Machine Co., to the Duchess of Manchester, formerly Miss Zimmerman, of Cincinnati.

It will be noticed that the basic lines are those of the King of Belgium type, which despite the fact that it has been in use for several years, still retains a well deserved degree of popularity with those to whom its soft and graceful curves appeal. The demi-limousine construction permits of a more rigid structure than can be obtained in the simple canopy top, while at the same time it has all the advantages of that style in the matters of light and ventilation. The closure at the back affords thorough protection to the occupants in all sorts of weather, both from the elements, and from the dirt of the road, giving the body all the comforting characteristics of the fully enclosed type. The entrances are wide and easily accessible, and the use of doors to the front seats is a feature to be remarked.

The great utility of the machine as a touring vehicle is shown by the arrangement for carrying two suit cases under the running boards on either side, while the space on the running boards between the seats is used to advantage by means of lockers which by no means injure the appearance of the car as a whole. The arrangement for the comfort and convenience of the passengers are as complete as

may be desired, while the fact that the protection of the occupants from any possible injury has been looked after as well, as is shown by the use of wire glass in the large window in the rear of the tonneau.

Motor Stage Routes Projected.

E. M. Wilson has established an automobile transfer line in Sterling, Ill. All trains will be met and he will make trips into the country and nearby towns as soon as business warrants it.

William Headlum contemplates running a motor 'bus next summer between Newburgh and Goshen, N. Y. The car will seat fourteen passengers and the fare will be 45 cents one way or 75 cents for the round trip. Two round trips will be made daily.

Because the Southern Pacific Railroad Company has refused time and again the petition of Fernando, Cal., residents to erect a new depot, they will institute a boycott by the establishment of an automobile line from that place to Los Angeles. The Board of Trade is behind the movement and a 14-passenger Knox car already has been purchased and commuters' books of tickets have been issued.

William Stonebourne, who runs the old stage line between Albany and Rennsalaerville, N. Y., has purchased a motor 'bus, with a passenger capacity of sixteen, which he will place on service between these two points on May 1. It will make round trips daily. The distance to Rennsalaerville from Albany is about 26 miles, and it now takes 24 hours, at least according to an Albany paper, to make the trip with double team coaches, and with the automobile Stonebourne expects to make the trip in less than three hours.

Hartford's (Conn.) board of assessors have figured out that there are just \$162,450 worth of automobiles in that city. This is an increase over 1904 of \$54,950.

FACTS ABOUT STEEL ALLOYS

Expert Souther Corrects Some Errors and Misunderstandings—Truth About Flux.

This item concerning the use of steels was "turned loose" by someone or other shortly after the shows and since has been industriously going the rounds of the press:

"A great deal of talk about nickel steel and chrome nickel steel was made during the show by the would-be wisecracks. Occasionally the fact that they were stupidly using a catch phrase was exposed, as when a man demanded why frames were not made of nickel steel. They are not, because in a structure like a frame the nickel does not flux evenly with the steel under the rolling process, but segregates. Nickel steel is all right for certain parts and is being used by a number of makers. Chrome nickel steel is high priced and very expensive to work."

Henry Souther, the well-known Hartford engineer and metallurgist, thinks it about time that the item's career was checked and the light turned on. He writes:

"The statements made are inaccurate and absurd. Such statements do a great deal of harm when read by the layman. Manufacturers get a very bad impression. Curiously enough, such statements are quite as readily believed because they are printed as the well considered statements of a trained metallurgist.

"For example, somebody started the theory about, that during the process of forging, nickel may be burned out of the steel. No more foolish proposition can be put forward than that. Nickel once incorporated in melted steel, as it is in common practice, can not be extracted by any process of forging, no matter how badly or how well done. Nickel once put in steel stays there. Nevertheless, the above was believed by well-known manufacturers.

"Now, as to the statement made in the paragraphs referred to: Frames are not made of nickel steel, "because in a structure like a frame, the nickel does not flux evenly with the steel under the rolling process, but segregates."

"In the first place the metallurgist can not conceive what the man is driving at who wrote it. Nickel or anything else does not get a chance to flux under a rolling process. Flux has nothing to do with metals, anyway, and has only to do with the slag connected with the melting process.

"Segregation can not occur in any rolling process, but can occur during the solidification of a large ingot. After once solidifying, no change takes place as far as segregation is concerned.

"Nickel steel is all right for frames, chrome steel is all right for frames, and the combination is all right for frames, if originally the steel is all right. It makes no

difference, providing that they are workable and can be used.

"For example, nickel steel was safely made into bicycle tubing in very large quantities by the old Pope Manufacturing Co., and it was probably the best tubing ever produced in the world. It would be a fine thing if the automobile maker could have such fine material as that was.

"Several frame makers have tried to press up side bars and other members of automobile frames cold from nickel steel and chrome steel. A great many failures have been made, and it is probable that hot pressing will have to be resorted to in order to produce successful frames of so stiff a material.

"Alloy steels are now being worked hot into pressed steel shapes and are used for gun carriages in the United States Army. If automobiles are to have the strongest possible frames, they will adopt similar materials, worked in a similar manner."

About Getting Under the Car.

Sooner or later the necessity for getting under the car arises, no matter how accessible its parts may be. A pit is in consequence a great convenience, but one that is for obvious reasons beyond the reach of the average private owner. Many expedients to provide something of the kind have made their appearance on the market, all of them accomplishing the object sought in a more or less satisfactory manner, but it has remained for a British genius to devise a "portable motor car elevator."

This is nothing like as ponderous or costly a piece of mechanism as its elaborate title would imply. Two metal strips several inches in width and of channel section form its sides, the length of which is slightly in excess of the wheel base of the car. These are tied and supported on a light metal frame running on three castors, the third one of which only touches the floor when the elevator is tilted to take on a car. The latter is run up to the apparatus and is drawn up the incline with a small drum and rope.

When the car is in place the frame may then be brought to a horizontal position and a leg dropped under one end to maintain it there, although this is not necessary as straps are provided to pass around the wheels to hold the car in the inclined position. Once on the elevator the latter may be used to move the car about or as a turntable. In order to accommodate cars of varying treads, the channels may be spread or contracted by means of the traverse tie rods which are equipped with turn buckles.

Pleasantville's Hopes Mount High.

Pleasantville, N. J.—it's down on the meadows near Atlantic City—is going to have an automobile factory if the residents will subscribe \$3,500 to repair an old building for its use. The offer will be accepted it is stated, but the names of the persons interested in the scheme are not mentioned.

CREAM COLOR FOR CARS

Not an Easy Task to Obtain it—How to Mix and Apply it for Best Results.

"There is a certain glow and warmth in the cream color used upon not a few of the big automobiles or touring cars that invariably sends a thrill of enthusiasm through the wayside pedestrian and gives to the beholder in general a great yearning to own the creamy-dressed machine," says Carriage Monthly. "The painting and finishing of a cream-colored job is no doubt attended with more than ordinary difficulties, and with the object of possibly eliminating some of these difficulties we here review the details of such work. First clean away the existing stains, discolorations and greasy smears, if any, and follow with sufficient sandpapering to reduce any coarse or raised grain of the wood to a clean, smooth finish. Then apply a coat of raw linseed oil and turpentine, with enough white keg lead to check the extreme penetrating power of the linseed oil, added, using three-quarters oil to one-quarter turpentine. Apply with a round or oval bristle brush, bound close enough, or reduced sufficiently by wear, to brush this primer into the wood fiber.

"This coat in a dry temperature of 65 degrees, uniformly maintained, will be in condition after forty-eight hours to sandpaper lightly, and coat up with a lead coat made of white keg lead, carrying one-quarter raw linseed oil to three-quarters turpentine, with a gill of japan to each one-quarter gallon of the mixture. Brush on a clean, fine coat of the pigment, free from brush marks. The day following carefully inspect the surface and putty existing defects with a putty made in this wise: dry white lead to a working consistency in quick rubbing varnish and gold-size japan, equal parts. For deep cavities in which putty dries slowly stiffen the putty up considerably by the further action of dry white lead.

"For any coarse, eaty patches of wood, thin the putty proportionately, and with a broad French scraping knife, half elastic; glaze in firmly but smoothly. The following day apply the first coat of rough-stuff, which if not purchased ready prepared, may be made according to the appended formula: Dry white lead, four pounds; pulverized pumice stone No. 0, one pound; pulverized soapstone, three pounds, with enough yellow ochre, dry, added, to throw a yellow cast into the mixture. Mix to a stiff paste with three parts quick-drying rubbing varnish and two parts of coach japan, then thinning the mass with turpentine to a free brushing consistency.

"Apply one coat of this stuff per day, using sufficient coats to "stop" the surface solidly enough to permit rubbing to an absolutely level surface. The number of coats to be determined by the condition of

the surface. To the final coat of stuff add enough lemon yellow to provide a guide coat for the rubber. Set the surface aside in good drying quarters for a week, if possible, after which time the rubbing out may be proceeded with. Select a medium fine rubbing brick, or, speaking technically, artificial pumice stone, and rub with strokes always directed one way, and, above everything else, avoid scratching or disfiguring the surface.

"It is next to impossible to eliminate the trace of such defects on a surface so delicate and so highly sensitive as the one under treatment. For moldings, pieces of the stone should be hollowed and grooved and otherwise fitted exactly to such parts that they may be rubbed to a perfection of surface quite equal to the panels, etc. After rubbing, stand the job aside until the day following, and then with No. 00 sandpaper, or, better still, a tuft of the curled hair customarily used by carriage trimmers, give the surface a light polish, then dust off and apply a coat of the proper color.

"Now in respect to this color, there are a number of paint makers who will furnish it true to shade or tint, and ground to a condition of exceeding fineness. If, however, the painter chooses to prepare this color for himself, it may be done as follows: Flake white, eight parts; chrome yellow, two parts; English vermilion, one part. If the flake white and the yellow should be japan ground—and as a matter of more assured accuracy of results they should be—thin out with turpentine, adding as a binder a tablespoonful of pale drying japan to each quart of the thinned color. In working out to the desired automobile cream now so much admired along the boulevards, and up and down the highways of the world, the above proportions may have to be modified, or added to or subtracted from, as the strength and coloring power of the pigments are determined.

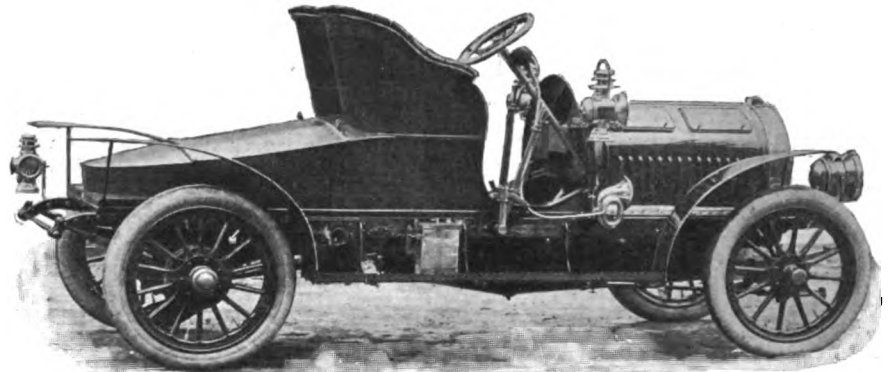
"Over the tinted roughstuff apply a single coat of the cream color, using a 2½-inch camel's hair flat brush. Thin the color to a condition to insure perfect freedom from brush marks, and work with an eye single to maintaining a clean surface, both in respect to stains or discolorations, and to accumulating substances commonly defined as dirt, either of which are capable of destroying that superb quality belonging to a cream-colored surface. Any surface ranging from the ordinary yellow to pure white depends for its beauty and brilliancy upon the purity of its color, which in turn is maintained only by a cleanliness described in books of old time as next to godliness.

"The coat of flat color having dried, it is again dusted off, and adding enough rubbing varnish to the color to convert the mass into a color-and-varnish without, however, disturbing a good measure of the covering power of the pigment, flow on a coat of this mixture using a flat 2½-inch bristle brush for the main panels, and a one-inch brush for moldings and wiping up, etc. After forty-eight hours, with a roll of soft

Royal Develops a Big Runabout.

Never until this year has that distinctively American type of machine, the runabout, come into a position of prominent regard. The runabout, in America, has been in past seasons what the tri-car and the quad have been to England, and the voiturette to France. Now, however, it has come much more largely to the front owing to the adoption of the type in a modified and

passenger seats and sloping decked backs. It is styled Model "N," and is furnished with the standard type of four-cylinder motor having "square" cylinders of 5x5 inch dimensions, and bearing a conservative rating of forty horsepower. The change speed gearing is of the familiar type, giving three forward speeds in addition to the reverse, by means of a sliding train of gears, and the braking equipment is of the



improved form by the makers of large and powerful machines. So wide has become its use and so greatly has the demand for it increased, that scarcely a maker exists who does not list among his types, at least one form answering to this description. Among them, of course, the name of Royal is to be found.

The Royal Runabout is a brand new proposition, which has just been announced to the trade, and well exemplifies the class of high powered cars which are being put out at the present time with two-

expanding clutch type, acting on wheels and transmission.

The wheel base is 110-inches, and this, coupled with the method of drawing the body lines gives the machine a particularly rangey appearance which is decidedly au fait this season. The seats are roomy and comfortable, and the sloping deck at the back affords not simply a finished appearance to the car, but gives ample storage space for extra tires and spare parts, such as cannot well be carried in the more conventional touring car.

broadcloth, or a perforated square of rubbing felt, dipped into No. 00 pumice stone, and water, rub the surface lightly, observing great care not to tear up in any way the color and varnish. It is simply desired to reduce the gloss and free the surface from any foreign substances.

"The next coat of color-and-varnish should contain a greater quantity of varnish and a consequently reduced portion of color. Flow this on quite as freely as you would the clear varnish, and hold the surface free from runs and sags and other ills to which the surface is heir by virtue of carelessness or lack of skill. In due time this coat may be rubbed a little harder and more thoroughly than the preceding one. This should suffice to furnish a surface both dense enough in color, and rich enough in body, to stripe upon. The following coat of varnish should be practically colorless rubbing varnish, flowed with precision and skill. Then follow at the proper time with a good uniform surfacing, wash perfectly and surely clean, and finish with an elastic finishing varnish without fault or flaw, and lo! victory is yours."

Here's the Traveling Repair Shop.

Although the idea of the traveling motor car repair shop is not exactly new, it is about to be put into effect in this country for the first time. An enterprising Milwaukeean has just conceived such a scheme. Clifford E. Golder, manager of the Curtis Automobile Co., who is responsible for the plan, is preparing to put it into execution at once, and before the summer season is well under way, the public in that vicinity will be served with a peripatetic repair shop of no mean capacity. For the purpose, an old touring car will be remodeled, the tonneau being replaced by a special form of body equipped with tools and spare parts of every description, even to a drill, vise and forge. The machine will be kept in readiness for a run at all times, and an efficient repair man will be on hand to go to the relief of the disabled motorist on an instant's notice, putting his machine into working order in the briefest possible time, or, in the event of its total disablement, towing it back to the home shop. Two shifts of men will be maintained during the summer months, so that there shall be no

BRAKES AND APPLYING THEM

Effort that is Possible and Why the Powerful Ones Require Caution.

One of the commonly accepted strong points of the average 1906 car is its system of brakes, in which it is agreed to excell its predecessors of a year or two ago to a very marked degree. Yet it is probably quite true that the average buyer at this time has no idea that the breaking power of his machine is far in excess of what is ever to be required, and that it puts into his hands a means of abuse which may do quite as much harm in the course of a season's use as would be done otherwise as a result of ineffectual brakes.

The truth of this assertion will be apparent if it be considered that while with a less powerful, or even insufficient braking equipment, the driver learns to allow for its shortcomings in his driving, and make his calculations accordingly, in the case of the cars of the day, unless he be extremely prudent in his management, he will tend to rely overmuch on his brakes, not simply running great risks of disaster in the event of their failure, unlikely though it may be, but by the same token greatly racking the entire mechanism and taking away the life of the tires, by the abrupt use of the brakes which he is tempted to make. Thus, although the advantage of the generally increased area of braking surface given to most cars at the present time, is undeniable from the standpoint of design, it carries with it the demand for greater caution and skill in handling than has ever before been the case.

Although it may not at first be apparent, it is nevertheless quite true that the maximum braking effort possible in any machine is measured not by the size and number of the brakes, but by the weight of the car, and the adhesion of the tires. For, granted sufficient power in the brakes either individually, or when applied simultaneously, to check the motion of the wheels so that they will slide, no further retarding effort is possible. Hence, in designing the brakes, after making all proper allowances for the losses in the mechanism due to the presence of oil on the surfaces, and, in the case of the rear wheel pair, commonly referred to as emergency brakes, of the losses due to improper equalization, the entire basis of further and final calculation must be the adhesion of the wheels to the road, or, in other words, the maximum tractive effort which it is possible to obtain.

This quantity is precisely the same as the maximum possible driving effort. Its magnitude varies exceedingly, not simply in measure with the size and degree of inflation of the tires, but with the condition of the road surface. Hence, while the maximum possible speed of a car of a certain weight may be figured on a basis

of its performance under the most favorable road conditions, the maximum possible braking effort, far as the power of the car is concerned, must be considered on a basis of the worst possible condition of the track, where the traction is greatest.

To consider a little more closely what is involved, take the case of a 2,000 pound car, which, when carrying a load of 600 pounds, has its load evenly distributed over the four wheels. Then the weight carried by each of the tires will evidently be 650 pounds. The coefficient of friction between the wheels and the road is such a variable quantity that it is difficult to make an assumption covering the proper condition, but for the present purpose, it may be taken as 40 per cent. for a hard dirt road having considerable loose soil on its surface, or for a macadam road in poor condition. Then, it is evident that the adhesion, or maximum tractive effort will be 40 per cent. of the load, or 260 pounds per tire, which is the measure of a force which applied at the tire would check the rotation of the wheel. Supposing the emergency brake drums to be 10 inches in diameter, and the coefficient of friction between the working surfaces to be 30 per cent., then the amount of force which must be applied at one brake in order to hold its wheel, will be equal to the inverse ratio of the diameters of the drum and wheel multiplied into the tangential force required at the wheel, and that in turn, multiplied by the coefficient. Or, in other words,

$$\frac{17 \times 260 \times .30}{5} = 2,947 \text{ pounds.}$$

That is to say, the application of this somewhat startling amount of force must be secured in order to check the rotation of the wheel instantaneously. When a system of linkage is used which gives an advantage of forty times the force applied at the hand lever, however, as is perfectly possible in the ordinary arrangement of parts, the amount of effort required at the lever is found to be but 72 pounds in round numbers, and when the lever is made to actuate both brakes, the total effort required is therefore 144 pounds.

Under ordinary circumstances, a far less expenditure of force at the lever would be sufficient to skid the wheels at once, and even under the most trying circumstances of soft road surface, the wheels would cease to turn almost instantly when the lever was pushed to its full limit, the effort being secured by a sharp thrust and hence being greater than would be possible if it had to be sustained for any length of time. Brakes of 10 inches diameter are extremely common at this time, while those of lesser size are commonly fitted with mechanism of such a nature that the requisite effort may be secured at the expense of an even less amount of force at the lever. From this, it will be seen that under ordinary circumstances, the enormous braking surfaces in common use are not essential.

Their advantage is that they are more lasting than those of less size, and that they more readily conduct away from the surfaces of contact the heat which is generated and hence run cooler than otherwise would be the case, unless water cooling were employed.

In the case of the running brake actuated by means of a foot pedal, the power obtained would be even greater than this for the same size of drum since the effort is applied through the medium of transmission gearing, and an added leverage gained in this way. In the somewhat rare case of a clutch shaft brake which is placed in front of the change speed mechanism, the effort varies in accordance with the position of the gears, and is greatest on the lower speeds, when its value is out of all proportion to the needs of any imaginable case. Commonly, the application of either brake, with a modicum of effort on the part of the operator is sufficient to skid the wheels at once, while the simultaneous application of the entire braking system through the means of an interlocking mechanism, serves to stop the motion of the parts with a shock, which, owing to the sudden absorption of the energy of rotation of the moving parts themselves, sets up internal stresses in the machine which are as destructive as they are uncalled for except when the action is essential to the preservation of the health and physical symmetry of the driver and passengers.

The width of the braking surface and hence, in a general way, the area of working surface is a consideration of but secondary importance in the design of the system, the diameter and pressure applied being the two essential elements to be dealt with. Friction, being dependent solely on the pressure between the surfaces in contact, and the diameter of the drum determining the advantage or leverage through which the frictional force is applied, the area may in theory be anything from a knife edge to ten feet. Owing to the abrading of the surfaces, however, which is inversely proportional to their area, the surface is made as great as is convenient, so that the wear shall be as slight as is practicable, and so that the heat generated shall be conducted away as fast as possible, for it is to be understood that the effect of friction is in every case that of the generation of a proportional amount of heat.

The idea of water cooling for brakes used on cars which are to be subjected to the strain of prolonged descents has been put into practice on a number of foreign cars, and one or two of American manufacture this season and last, with good results, but it is by no means a necessity in ordinary work, and as a matter of fact, it entails so much extra mechanism which is not ordinarily essential, that it hardly seems worth its added cost of installation. The evil effects of overheating in the brakes may be overcome by applying them intermittently and alternately as far as possible,

and indeed, the skillful driver counts the hot brake shoe as among the least of his troubles on the road, and seldom considers it at all.

Considering the superlative quality of the braking equipment of the average car, the essential requirement in handling it is decidedly a negative one, for it should be used with caution at all times, and should invariably be applied as gently as possible in order to minimize the strains on the mechanism, and the abrasion from the surface of the tires as well. The braking surfaces should be kept in good condition at all times, free from oil and dirt of all sorts, and the mechanism should be so adjusted that the shoes cannot drag when the car is in motion. All things considered, perhaps, this is the most important admonition of all, and the one which is least likely to be obeyed in the average case.

How to Test the Two Sparks.

Seldom have the advantages of the different sparks produced by the high tension and the make and break been more effectively compared than in the following which is an excerpt from an article on ignition systems generally, from the pen of Charles E. Duryea. Taking them in the order mentioned, he says:

"Pass a strip of paper between the points of a jump spark plug and the paper will be perforated by the sparks, leaving a line of minute holes. To get the actual size of the spark in the cylinder the points should be separated a quarter of an inch or more, for it is well known that the compressed air is an insulator, and that engines which frequently miss on full charges will fire regularly when throttled, thus proving that there is a larger and better spark when there is no compression.

"To test the make and break spark in a similar manner, connect one wire from such a system to a piece of sheet metal on which is placed a sheet of thin paper, preferably held about one thirty-second of an inch above the metal. Connect the other wire to a common pin and push the latter through the paper. Then pull the pin away quickly. A large spark will follow, burning a hole through the paper, frequently an eighth of an inch in diameter. Compare the area of this hole with that of the minute perforation made by the jump spark, remembering that the make and break spark is also longer, and it will be seen that the volume and heat of the make and break spark is much larger, on which account it will fire a less perfect mixture."

"To prevent rust," relates one who says he has tried it, "take four ounces of paraffin wax and melt it in a tin, pour the melted wax into a pint bottle of gasoline and shake well until it is dissolved. Brush this mixture over all the metal parts and it will effectually prevent rust and oxidization from attacking it. A little gasoline will easily remove the wax."

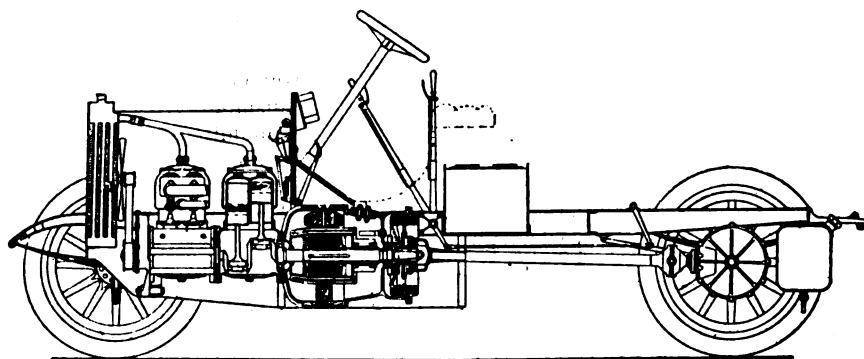
GASOLENE-ELECTRIC SYSTEMS

Great Diversity that Exists—One of the Most Recent French Efforts.

Numerous attempts have been made to perfect the electrical transmission for the gasoline motor car during a period extending back to the veriest infancy of the industry. Plausible enough in theory at least, to attract the attention of the designer, the idea of securing a thoroughly flexible and simple method of control and that at the same time embodied in a system which upon occasion could be used to supplement the effort of the motor, the constructor of an electrical turn of mind

gear, the drive is always direct. Under the driver's seat is a battery of accumulators, by means of which the dynamo itself can be used as a motor whenever it is desired to increase the speed of the car or to help the engine driving up-hill. It also forms the only means of reversing. When not in use, the battery is charged by the dynamo if the conditions are favorable and the engine is not already fully occupied in its task of driving the car. On the Auto-Mixte chassis, the battery consists of 28 Tudor cells; these weigh 375 pounds, so that altogether the chassis weighs 2,775 pounds in running order. All the cells are coupled up in series.

At the driver's right hand is a lever which operates the controller, mounted on the side of the frame, and in front, on the dash, is a volt ampere meter which indi-



THE ELECTRO-MIXTE SYSTEM.

has ever had some plan up his sleeve which followed along this line. And although the machines built have been distinguished not infrequently by their cumbersomeness, they have been far from crude, and have besides shown a very marked similarity in a general way.

Very diverse, however, have been the numerous systems adopted; some, like the Krieger, merely use the electricity as a medium for transmission of power to the driving motors; others, like the Fischer, supplant this by a battery of accumulators, which affords a source of reserve power and enables the engine—which may be built on the small side—to be kept running always at an approximately constant speed and load. In other cases, like that of the German, the dynamo and motor form a compound unit which provides a gradually variable change-speed-gear; whilst in the Auto-Mixte system—recently exhibited at the Paris Salon—it is the dynamo itself which is occasionally used as a motor (in conjunction with accumulators) when the engine needs temporary assistance.

The dynamo is mounted immediately behind the engine, and just behind the dynamo is the main clutch. The armature is thus caused to revolve so long as the engine is running. A propeller-shaft transmits the power to the live-rear-axle and, there being no mechanical change-speed-

gates the condition of the battery by showing whether it is discharging, being charged, or is in a state of electrical rest. It will be understood that the battery assists the engine by discharging its current through the dynamo—thus converting it into a motor, and that the dynamo is equally in readiness to charge the accumulators by reversing the current. Which of the two obtains the mastery depends on the speed of the dynamo and on the prevailing conditions, that is to say, on the position of the controller, which varies the resistance in the circuit of the "shunt-wound" magnets of the dynamo. If it is desired to go faster, whether on the level or up-hill, the controller-lever is advanced forward, and this, by weakening the voltage of the dynamo, renders the battery more in a position to drive it as a motor. On the engine is a magnetic governor, which acts directly on the throttle-valve, and in conjunction with the controller is an electro-magnetic device which times the ignition. Ordinary low-tension igniters are employed, but the position of the iron core in the intensity coil of the circuit is made adjustable, and is connected to the controlling lever. Altering its position varies the "fatness" of the spark, and the relative igniting powers of the "fat" and the "lean" sparks are considered sufficient to give the necessary advance or retardation.

BRIDGE OF COLLISIONS

Where and Why they Occur Oftenest at Victoria, B. C.—Regarding Road Rules.

"On a bridge in the city of Victoria, B. C., there are more collisions every day than upon any other bridge in the world," announced an elderly gentleman in a group discussing the rules of the road, says the Spokesman.

"Railroad collisions do you mean?" inquired a youngster.

"No, sir; I don't mean railroad collisions. I mean head-on collisions between vehicles, and face-to-face collisions between pedestrians. And the reason for them all is that the bridge is the spot where the American rule of road clashes with the English rule of road. We always keep to the right and the Canadians there keep to the left. And the result is one continual mix-up.

"Did you ever stop to consider how strange it is in a custom of this kind, which is so important and so often used, the American colonies should have worked out a rule diametrically opposed to the mother country? Why is it that in England people on the road always keep to the left, while in the United States and most parts of Canada they always keep to the right?"

Nobody ventured to reply. "Well, why is it," continued the speaker, "that we now call the horse that is nearest to us the 'off' horse and the horse that is farthest away from us the 'nigh' horse?"

A young man murmured a few indistinct words about "ox teams."

"Right you are!" exclaimed the veteran. "The humble and obsolete ox is responsible for all those collisions up in Victoria. In England, way back before they ever had carriages or vehicles of any kind, when armored knights on horseback used to be about the only people that met in the roads, the custom of keeping to the left sprang up, and most reasonable it was. Because in those days the knights were always looking for trouble and they never knew who was going to hand them a blow from a broadsword. So they always took care to pass other travelers with their sword-arm towards them, simply as a matter of precautionary defense. This naturally meant that they should hunch over to the left edge of the road and present their armed right hand to the passerby."

"Isn't that a pretty fanciful explanation?" asked one of the circle, who was bolder than his companions.

"Yes, I think it is, and I only gave it to you for what it is worth. But it's funny that, reasoning in the same way, you can explain why Americans keep to the right. Because in Colonial days the peril on the road did not come from the travelers, but from the savages lying in the ambushes in the surrounding forests. Therefore, the

New England settler took care to present his right arm to the source of possible danger, and consequently rode on the right side of the road. His reasons were unconsciously the same as those of the knight of King Arthur, but by acting upon them he created an entirely different custom.

"But I don't think it was the knight or the Colonial horseback rider that originated either of the national rules of the road. It was the carter and the ox driver. The carter was the person who made the greatest use of the English highways and byways as soon as the country developed enough to need a transportation system. Long caravans of heavy drays passed over the roads, each driven by a man who rode upon the left-hand animal, originally picked out, I suppose, because a horse is mounted on the left side, and because a position on the left side of the pair brought the right arm over into the centre of the field of action, and permitted free exercise of the whip. Being mounted on the left-hand horse, the carter naturally drew over to the left-hand side of the road when he wished to dismount in order to avoid the mud in the middle of the road, into which he would plunge if he pulled over to the right side and then got down to terra firma. And having dismounted on the left side, he would naturally trudge along that edge of the road with his team, and other teams similarly situated would, of course, keep to the left to avoid criss-crossing.

"It's odd," concluded the veteran, "that in the different provinces of Canada different customs in the matter prevail. In Ontario and Quebec drivers turn to the right, and in Nova Scotia and New Brunswick they turn to the left. In France the rule of right prevails; in different parts of Germany and Austria different habits obtain. You often have to change from left to right, or vice versa, when crossing some unimportant frontier."

Electioneering in Motor Cars.

Automobiles played a far more prominent part in the recent general election in England than many of the candidates did. One of the results of the use of such a great number of cars for the same purpose was the development of some amusing situations the recitals of which makes diverting reading. On one occasion the candidate of a local constituency was making the last cleaning up round of his territory and told his chauffeur to get all possible speed out of the car. Unfortunately a lamp went out and the driver stopped to relight. The candidate slid out of the tonneau at the same time to examine the guideboard. In the meantime the chauffeur remounted and got away without losing any time, oblivious of the fact that his employer was left behind in a rain storm without any overcoat and miles away from the meeting place he was due at. It seems like the irony of fate to have to record the fact that the candidate met defeat.

FACTS FROM A FARMER

Explains How Drivers Make Horses Timid and Gives Some Good Advice.

"I drive both a horse and an auto and have had ample opportunity to view the horse scaring question from the viewpoint of both the farmer and the automobile owner," writes a contributor to Farm and Home. "I believe that any horse can, by a few trials, be trained to pass an automobile quietly. I possessed a horse that was frantically afraid of an auto the first few times he met it. Like all horses unaccustomed to the machines he shied from the strange thing because he thought it would hurt him.

"It is doubtful if any horse shies or scares at a thing just to be mean. If a horse has any life in him at all, he will shy from any object on the road that is strange to him. Especially is this true of colts, and one that will not do it is hardly worth breaking.

"In my case, I led the horse up quietly to a machine that was drawn up to one side of the road. He snorted and pranced frantically at first but was gradually persuaded to approach close enough to touch his nose to the seat. Then the motor was started, and the horse held close to the vibrating machine. He soon learned that it was a harmless thing, and he now passes an auto on the road with but a pricking of his ears and a look of disdain, as he believes it hardly worth the attention of a sensible horse.

"While driving my machine I have met all sorts of people on the road, and fully three-fourths of them have trouble in passing with their teams. The whole trouble lies in the people being more frightened than the animals. Men begin yelling, women screech, and the horses at once conclude that the automobile is going to hurt them. I have met farmers, who, on seeing the machine approach, would hurriedly blindfold their horses that they might not see the puffing monster pass. After such an experience it would be a difficult matter to drive that team by a car without serious trouble. Others begin applying the whip when their team shies and the next time the horses are afraid of both the automobile and the whip.

"Be gentle, be cool, be patient when you meet an automobile with your fractious horse. The "chug chug" wagon is here to stay, and we may as well begin early to accustom the colt to it, just as we had to do with the bicycle and the locomotive."

The automobile has penetrated the Alps in the form of a bobsleigh. The device is called the Credos. It is an automobile sleigh with a sharp bonnet, which enables it to cut through the wind like the point of a good racer. It promises to be a feature in the winter sports in the Alps.

WHY FRANCE IS FEARFUL

**Alarmed by Progress of Other Countries—
The Situation Well Stated.**

"For a long while past it has been evident that the French motor car industry has been in somewhat an unsettled state," says the Motor Review in commenting upon upon the change which has come over the French manufacturers who see that their future supremacy lies in a continuance of racing. The manufacture of motor vehicles has grown so rapidly that the heavy production has raised a problem which makers themselves do not find easy to solve.

"Although the number of cars built in France is enormously in excess of home needs, there is no apparent falling off in the new firms who are constantly coming into the industry, and it is not easy to see how trade can escape trouble in the early future unless it is able to continue the policy which has been carried out for some years past of securing an increasingly firm hold upon the foreign markets. For the moment the foreign demand seems to be keeping pace with the increasing production, to judge at least from the business done at the Paris Salon, when most of the leading firms booked orders for their whole output during the present year. Nevertheless, it is obvious that foreign countries are beginning to satisfy their own requirements, and are even sending vehicles into France where their performances in the different trials, and the popularity they have secured among the public, prove to the French makers that they no longer hold the position they did formerly. They, of course, have a great advantage in so far as concerns their productive facilities and in their great reserve of skilled labor, which enables them to hold their own against the growing foreign competition, but at the same time it is clear that these advantages will be diminished in the early future as foreign manufacturers extend their works and acquire the same experience as the French makers.

"The last show in Paris proved that so far as technical advances are concerned, a limit has now been reached when there is a tendency toward a levelling up all around. Under these circumstances the French manufacturer has to adopt every possible expedient for maintaining the lead he has obtained upon his foreign rivals. How this is to be done has long been a vexed question in automobile circles. A year ago it was thought that the French industry would secure its position by adopting a policy which aimed at stifling the development of the industry abroad. In England, Germany, America and elsewhere it is believed that the reputation of the French cars would be eclipsed by the success of foreign vehicles

in international races, so that every effort was made to continue the policy of organizing a long distance speed contest which has done so much to build up the industry in France. The danger of this policy was so obvious to the French makers that they tried to suppress racing altogether, unless they could introduce their famous formula of "proportionate representation." This, of course, was summarily rejected by the foreign manufacturers, and finding matters at a deadlock the Automobile Club of France formally decided to withdraw from racing in any shape or form.

"For a time it seemed as if there was every prospect of France inaugurating a new policy when racing would be replaced by trials of touring vehicles of which the European circuit and the wheel and the race were to be the most important features. This project did not pan out nearly so well as the French club expected. The tire manufacturers showed very little readiness to take upon themselves the burden and expense of competing in races which would have the effect of showing up the weakness of their products more than their merits, and the experience gained during the year with the various touring trial events did not point to the European circuit being a particularly brilliant success. At the same time Italy decided upon organizing big races, and in Germany an agitation was started in favor of racing, so that in the event of the French makers abstaining there was every prospect that public interest in the automobile movement would be diverted from France to other countries, in which event the last state of affairs would be worse than the first. Seeing that nothing could replace motor-car racing as a means of enabling the country to maintain its prestige, the French manufacturers boldly decided to make racing the most prominent feature of the year, and on this principle being almost unanimously adopted by the trade, arrangements were at once made for finding a suitable site.

"For certain reasons that it is unnecessary to go into here, the French club decided to reject the Auvergne circuit and select one nearer Paris, where the race would be regarded as a public attraction. Instead of running cars over courses which are specially selected as offering the greatest difficulties to the drivers, the sporting commission of the French Club has been inspecting circuits with a view of finding a level circular route of about sixty miles on which the highest possible speeds can be attained. After inspecting three circuits within easy distance of Paris the sporting commission finally approved of what is known as the Sarthe circuit. Starting a few miles outside of Le Mans the road is perfectly straight along one side of the triangle to St. Calais. From here to La Ferte-Bernard the road undulates with occasional stiff gradients, and then back again to Le Mans the going is first undulating and then flat. Of the sixty miles of road there are more than fifty miles abso-

lutely straight, and except for the bends at the apices of the triangle the cars will be able to travel at their maximum speed the whole way. This race will prove a very severe test not only for the cars, but more especially for the pneumatic tires. Although the forthcoming race has not yet been officially named it is probable that it will be known as the Grand Prix de l'Automobile Club of France, and thus the French body will have carried out its intention, expressed at the beginning of last year, to replace the Gordon Bennett contest with a Grand Prix race, although the conditions under which this will be done will have to be considerably modified. Each maker will be allowed to enter a maximum number of three cars, and presumably it will be an open race in which all nationalities will be allowed to take part under equal conditions. There is no doubt that from a business point of view the French trade has acted very wisely in continuing the traditions of the sport, and there is every prospect therefore of the present year giving a fresh incentive to motor-car racing which a little while ago seemed to have its days numbered.

Knuckle Joints in Connecting Rods.

A distinct novelty in the line of motor construction has recently been inaugurated by a foreign inventor who has introduced a knuckle joint in the connecting rods just above the crank shaft bearing. The object is, of course, to permit of automatic alignment of the bearing in case the cylinders are not mounted at right angles to the engine axis. Of course, this tends to deprive the rod of a certain amount of its essential rigidity, but the matter of alignment is one which cannot be neglected with impunity, and it would seem that some provision of this nature made either in this way, or by the use of a bushing set in a spherical seat, would prove a distinct advantage in catering to efficient action in the motor.

Swiss Test for Service Vehicles.

A competition for commercial vehicles is being organized by the Automobile Club of Switzerland, the proposed dates of which are April 23d to 27th inclusive. There will be two classes—one for public service vehicles, and one for motor trucks. The test will be conducted upon an economy basis, and there will be four daily runs, those for the public vehicles ranging from 95 to 115 kilometers and for the trucks, about 85 kilometers.

When the Car is New.

Especially with new cars, which are now being bought, the man who is his own chauffeur should regard the rule of looking over every part and tightening all nuts before going out. However well made a machine may be nuts will loosen during the early days of its running on the road until they get set, through all the parts becoming reciprocally adjusted, for a car, like a ship, must "find itself."



The Lozier Motor Car

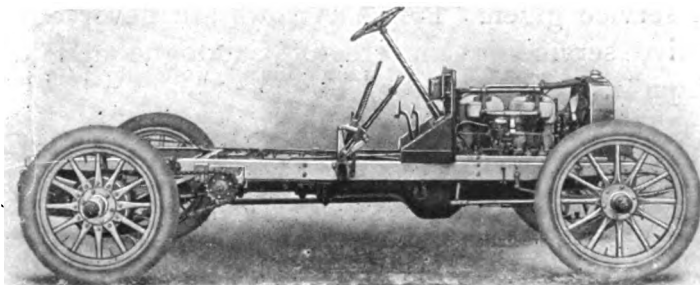


¶ In Motor Car Service, *weight*, properly considered, has much to answer for. *Strength*, of course, is what is aimed at in the more or less heavy kinds of construction, but strength may be attained in the *less* heavy kind if the *master hand* is back of the design.

¶ In the 40 H. P. Lozier Motor Car, weighing less than 2,800 pounds, greater strength is secured by virtue of its perfect mechanical construction (and the master hand) than is evidenced in many cars of from 15 to 25 per cent. greater weight. ¶ Too great weight is no more desirable in a Motor Car than it is in a sleigh, but *too great strength* is hardly possible. Too great *weight* means sorrow for the tires—and tires cost money—besides it is an insult to a good motor

car tire to wear it out needlessly through making it do *truck service*. ¶ Too great weight takes more power to move—*power* means something more than gasoline—and even gasoline costs money. Too great weight usually shows itself somewhere, or if it does not show, it sooner or later makes itself felt. *Too light* weight is also possible—but that is the other extreme—never go to extremes. ¶ The construction of Lozier Motor Cars embodies years of study and long practical experience in the manufacture of High-grade Gasoline Motors, and we know how to build

for all the desirable points in a high-grade car. Get an opinion from any Lozier owner. Send for Motor Car Catalogue describing Lozier Construction.



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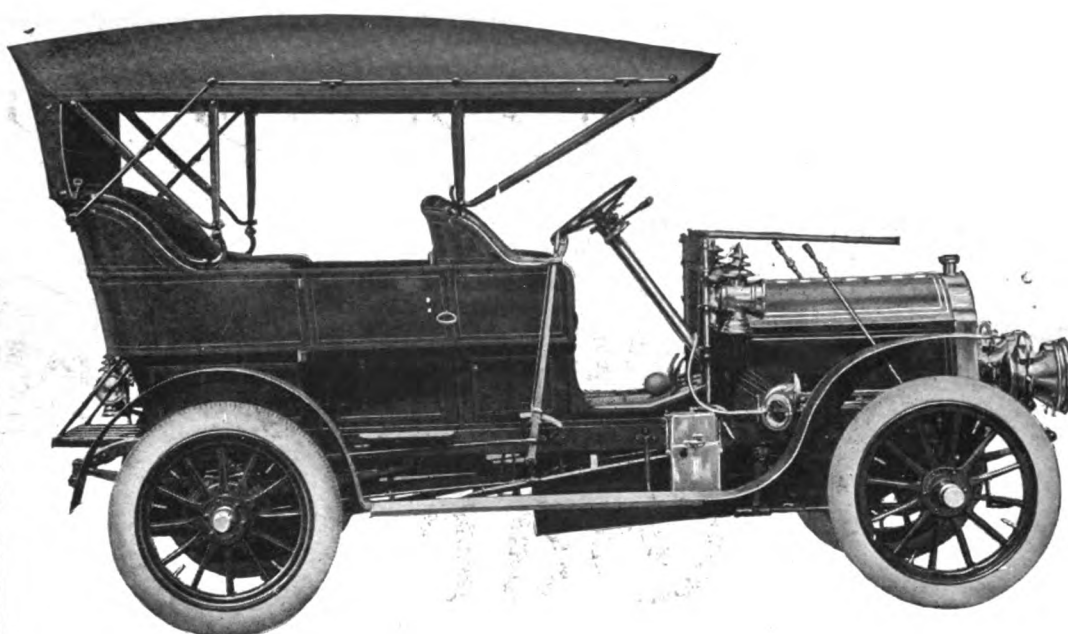
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is made. The initial cost of a Pierce Arrow is greater than that of any automobile made in this country, but the price seems low when compared, not only with the small cost of maintaining, but with the long time of service given. Pierce Arrows are never out of date as far as effective service is concerned. Catalogue and descriptions mailed on request.

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| | Utica, N. Y.—Utica Motor Car Co. |

The Week's Patents.

12,449. Electrically-Propelled Vehicle. Russell Thayer, Philadelphia, Pa. Filed July 29, 1905. Serial No. 271,800½. Original No. 764,020, dated July 5, 1904.

Claim.—1. An automobile propelled with an electric motor and a storage battery; having wheels constructed and arranged to traverse the tracks of a railway supply system, with said motor in operative connection with said system, and, to traverse a trackless roadbed, independently of said system, with said motor in operative connection with said battery, substantially as set forth.

811,533. Control of Automobile Motors. Edward H. Anderson, Schnectady, N. Y., assignor to General Electric Company, a corporation of New York. Filed June 29, 1905. Serial No. 267,510.

Claim.—1. In a single-motor drive for automobiles, a storage battery, a motor provided with a plurality of field-windings, and a controller having contacts arranged and connected to connect said motor to said battery with a field-windings in series, shunt one of the field-windings, remove said shunted field-winding without breaking the shunt, and then connect the field-windings in parallel.

811,562. Friction Device for Brakes and Clutches. Charles W. Hunt, West New Brighton, N. Y. Filed June 14, 1905. Serial No. 265,142.

Claim.—1. A friction device for brakes and clutches, comprising a friction-band, a friction-surface to co-operate with said band, differential levers independent and substantially radial to which the ends of said bands are respectively secured and means to move both of said levers in one direction or the other, whereby the ends of said band are moved differentially in one direction or the other.

811,618. Carburetter for Hydrocarbon-engines. Charles H. Claudel, Argenteuil, France. Filed May 26, 1904. Serial No. 209,976.

Claim.—1. In a carburetter for supplying motors, the combination of a vaporizing or gasification chamber, a casing surrounding this chamber and providing for the exhaust-gases of the motor a passage having two parts which overlie different portions of said chamber, the outer walls of said parts being heat-conducting to an unequal extent, and means for varying the distribution or circulation of the exhaust-gases in the two parts of said passage.

811,622. Air-Cushion for Vehicles. Murillo Downer, Chicago, Ill. Filed May 7, 1904. Serial No. 206,842.

Claim.—1. In an air-cushioning device for vehicles, an air-cushion to normally carry the load and a spring within such a cushion adapted to provide an elastic support for the vehicle when the pressure of air is diminished in the cushion.

811,630. Bearing. Charles Glover, New Britain, Conn., assignor to Corbin Screw Corporation, New Britain, Conn., a corporation of Connecticut. Filed Oct. 10, 1905. Serial No. 282,145.

Claim.—1. A bearing having an outer groover ring, an inner groover ring, balls therein, and trough-shaped pieces of sheet metal for separating the balls.

811,640. Oil-Feeding Device. Thomas J. Kehoe, Fort Wayne, Ind. Filed June 9, 1905. Serial No. 264,387.

Claim.—1. In mechanism of the class described, a fountain having a series of independent leads communicating with its lower part; a series of plungers working in the leads respectively and each plunger having means in connection therewith for admission of oil from the fountain into the corresponding lead when the plunger is in uppermost position; outlet-valves arranged one in each of the leads, and located therein beneath the corresponding plungers; and mechanism in connection with the plungers to actuate the same.

811,646. Vehicle-Wheel Tire. John H. Lorimer, Philadelphia, Pa. Filed Apr. 15, 1905. Serial No. 255,683.

Claim.—1. In a vehicle-wheel, a supporting ring, a pair of flanges, and a series of independent transversely-arranged spiral-spring tread units.

811,656. Spark-Coil. Charles P. L. Noxon, Syracuse, N. Y. Filed Sept. 26, 1904. Serial No. 225,930.

Claim.—1. The combination of a primary circuit, a secondary circuit, means for interrupting the current in the primary circuit, means for holding the first-mentioned means in its position assumed when the current is interrupted thereby, and mechanical means for making and breaking the primary circuit, substantially as and for the purpose described.

811,680. Controller for Sparking Devices of Gas-Engines. Daniel B. Willix, Alexandria Bay, N. Y., assignor of one-half to George W. Willix, Alexandria Bay, N. Y. Filed Apr. 24, 1905. Serial No. 257,266.

Claim.—1. In a gas-engine or the like, means for controlling the current to the igniters, comprising a set of contact-terminals for each igniter, each set consisting of a contact-terminal connected in a primary circuit of the coil and contact-terminals connected in the secondary circuit of the coil and to the igniter, all of said contacts being arranged in a single row, and means operating with the main shaft of the engine to close said contacts.

811,708. Ball-Bearing. Samuel E. Evelland, Philadelphia, Pa. Filed Sept. 21, 1905. Serial No. 279,405.

Claim.—1. A bearing comprising the combination of concentric rings whereof one is grooved on its inner and whereof the other is grooved on its outer surface, balls interposed between said rings and arranged in said grooves, and a cage comprising a crown-toothed ring having between its teeth countersinks and having the ends of its teeth enlarged and provided with concave faces to permit of the insertion of balls and having the shanks of the teeth inclined to form with said countersinks and the enlarged heads ball-sockets, substantially as described.

811,732. Armor for Pneumatic Tires. Alanson A. Moore, Detroit, Mich., assignor of one-half to Frank H. Bessinger, Detroit, Mich. Filed Feb. 21, 1905. Serial No. 246,767.

Claim.—1. The combination with a tire and a rim of greater width than that portion of the tire which engages said rim, of a securing-band engaging the outer surface of the rim at one side of the tire, means on the ends of said band for drawing said ends toward each other to clamp the band to the rim, a series of chains extending transversely across the tire and forming an armor therefor, and means for securing the ends of the chains to said band.

811,734. Automatic Governing Device for Gasolene Engines. David C. McCarroll,

Kansas City, Mo. Filed Nov. 29, 1904. Serial No. 234,702.

Claim.—1. In valve-operating mechanism a rotary shaft, a main cam-plate fixed on said shaft, and a supplemental cam-plate loosely connected with said shaft and having its cam in normally open or extended position from the fixed cam said plates having registering openings extending tangentially to the said shaft, an angle-bar having an inclined edge within said registering openings adapted to move said loose cam-plate toward a coincident position with the cam on the fixed cam-plate and self-adjusting means for holding the supplemental cam-plate in contact with the said inclined edge of said angle-bar.

811,744. Combustion-Engine. Fritz Reichembach, Charlottenburg, Germany. Filed Mar. 9, 1905. Serial No. 249,203.

Claim.—1. In an internal-combustion engine, the combination of a cylinder having a head, a piston, the piston and the head forming when in juxtaposition an annular combustion-chamber, inlet and exhaust valves, and a fuel-injector arranged tangentially to said annular chamber, for the purpose set forth.

811,752. Steam or Gas Turbine. Johann Stumpf, Berlin, Germany, assignor to General Electric Company, a corporation of New York. Filed Oct. 6, 1904. Serial No. 227,353.

Claim.—1. In an elastic-fluid turbine, the combination of a nozzle or fluid-discharging device, a primary bucket-wheel receiving motive fluid from the nozzle or fluid-discharging device, and a secondary bucket-wheel receiving motive fluid directly from the primary wheel, the buckets of the secondary wheel being so shaped that its speed exceeds that of the primary wheel.

812,201. Method of Mounting and Automatically Adjusting the Lamps of Motor Road-Vehicles. Leonce Girardot, Puteaux, France. Filed Oct. 14, 1904. Serial No. 228,474.

Claim.—A device for automatically adjusting the lamps of motor-cars in accordance with changes in the direction of traveling comprising in combination a rotary lamp-support pivotally mounted on a ball-bearing, a plate supporting said ball-bearing and rigidly fixed to the cooling-jacket or the frame of the motor-car, a horizontal rod attached by one end to the rotary lamp support, a vertical rod provided at its other end with a fork and pivoted in an intermediate point to the cooling-jacket or the frame of the motor-car, two collars mounted on the steering-rod and adapted to engage with the forked end of the vertical rod, and a spring connecting one end of the lamp-support to a fixed part of the frame.

812,259. Tire-Protector. John E. Caps, Kansas City, Mo. Filed Jan. 31, 1905. Serial No. 243,477.

Claim.—1. In a tire protector, a yielding body, and a puncture-resisting member located therein and comprising a strip of resilient material extending longitudinally through the body and disposed in a plurality of overlapping convolutions.

812,304. Explosive Gas-Engine. Edward G. Short, Carthage, N. Y. Filed Sept. 24, 1902. Serial No. 124,702.

Claim.—1. An explosive-gas engine having a cylinder with a combustion chamber and a piston working therein, an exhaust-chamber, a fuel-duct, an air and fuel combining chamber, having free and unobstructed communication with said combus-

tion chamber, an air-compression compartment, and a vacuum-space intermediate the combustion-chamber and the compression-compartment, a valved passage-way leading from the vacuum-space to said exhaust-chamber, valve mechanism for allowing air under pressure from said compression compartment together with fuel, to simultaneously enter the combining-chamber, and means for actuating said mechanism exposed on one side to the atmosphere and on the other side to the vacuum-space, as set forth.

812,321. Vehicle-Tire. Hugh R. Auld, Boston, Mass. Filed Feb. 13, 1905. Serial No. 245,364.

Claim.—1. A tire comprising a strip of rubber having flanges upon each side of the tread portion for supporting the retaining wires, and a stiffener consisting of rigid longitudinal side bars located in the base portion of the tire beneath the flanges with their widest dimensions parallel to the base, there being thick cushions of rubber between the side bars and the wire-engaging surfaces of the flanges, and a cross-bar joined to the side bars and embedded in the rubber.

812,338. Motor-Driven Vehicle. Hans T. Hansen, Wauwatosa, Wis. Filed Apr. 15, 1905. Serial No. 255,702.

Claim.—1. In a vehicle of the described class, the combination of a central fixed axle-shaft provided with vertically-extending pivot-studs; an oscillatory ring mounted on said ring; and driving mechanism having universal-joint connection with the wheel exterior to the hub and substantially in the plane of the wheel-rim.

812,345. Transmission-Gearing. Emil Huber, Detroit, Mich. Filed Nov. 15, 1902. Serial No. 131,475.

Claim.—1. A change-speed gear consisting of a combination of a driving-shaft, a driven shaft, means for connecting and disconnecting said shafts, a spur-wheel and a clutch member fixed upon said driven shaft a counter-shaft, a spur-wheel upon said counter-shaft in constant engagement with the first mentioned spur-wheel, whereby said counter-shaft is driven, a secondary shaft continuing in line with said driven shaft, a clutch member slidably engaging but rotably fixed thereon and adapted to engage clutch member upon the driven shaft, said clutch member being fashioned and engaging substantially as hereinbefore described, whereby the driving-shaft is enabled to drive the driven shaft with the same speed, a spur-wheel normally rotating freely upon said secondary shaft, the clutch member engaging said secondary shaft being made with an opposite clutch-section adapted to engage the spur-wheel normally rotating freely upon said secondary shaft and compelling said spur-wheel to rotate in connection therewith, a spur-wheel engaging said second spur-wheel being fixedly mounted upon said counter-shaft, the whole being so arranged that the double clutch member may be shifted centrally out of engagement with the two opposite clutch members, detaching the secondary shaft from the counter-shaft, or into engagement with the clutch member on the spur-wheel running loosely upon the secondary shaft whereby the said spur-wheel through the intervention of the gearing upon the counter-shaft will drive said secondary-shaft with a speed proportional to the gearing, gear-wheels normally rotating freely upon said secondary shaft, a second pair of companion clutch members mounted between said companion clutch members and gear-wheels and adapted to engage either one or be adjusted centrally out of engagement

with both companion clutch members, gear-wheels on the counter-shaft adapted to engage the last-mentioned gear-wheels and means for shifting the last-named pair of clutch-members, substantially as described.

812,371. Speed-Regulator for Explosive-Engines. John A. Secor, New York, N. Y., assignor to General Power Company, a Corporation of New Jersey. Filed Mar. 16, 1904. Serial No. 198,345.

Claim.—1. In an internal-combustion engine the combination of an air-throttling-valve, a fuel throttling-valve, and a water throttling valve, with a governor adapted to vary the quantity of the combustible charge, and the relative proportions of air, fuel and water, in coordination with the variations in quantity of said charge.

812,373. Pneumatic-Tire Protector. Lester L. Sidwell, Rivera, Cal. Filed Sept. 23, 1904. Serial No. 225,661.

Claim.—1. A tire-protector comprising a series of curved protecting-pieces, buffers secured between said pieces and means for securing the said curved protecting pieces upon the tire, said means adapted to slide upon the said curved pieces.

812,427. Wheel-Tire for Automobiles. Herman Kerngood, Baltimore, Md.; and Harry A. Taylor, New York, N. Y. Filed July 3, 1905. Serial No. 268,198.

Claim.—The combination with a sheet-metal rim, strips secured to the rim with washers interposed between the strips and the rim, convolute springs extending transversely of the rim and having loose sliding connection between the rims and the strips, a transversely-bent strip fitted over the several springs and a rubber tire enclosing said strip and springs and secured at its edge in edges of the rim.

812,483. Power-Transmission Device. Frank de Coligny, Chicago, Ill. Filed Aug. 7, 1905. Serial No. 273,047.

Claim.—1. A power-transmission device, the combination with the driving and driven parts, of a cylinder on one of said parts having an inner bearing-surface surrounding an oil chamber provided with inlet and outlet ports, and an oil-circulating conduit communicating with the ports, a wheel eccentrically mounted on the other of said parts to have independent rotation thereon in rolling contact with the said surface in the said chamber, a resilient deflector in said chamber between the said ports and bearing against said wheel, a valve in said conduit, and opening means for said valve.

812,519. Power-Transmitting Mechanism. Joseph Pentrelli, New Haven, Conn., assignor to The Snow & Petrelli Mfg. Co., New Haven, Conn., a corporation. Filed Mar. 11, 1905. Serial No. 249,639.

Claim.—1. In a power-transmitting mechanism, the combination with a rotatable case, of a driven shaft, a fulcrum-gear and a driven gear differentiated from each other in size and arranged concentric with the said case and shaft, a driving-pinion and a driven pinion differentiated in size, rotating together on the same axis, meshing directly into the said fulcrum and driven gears respectively and revolved planetwise around the same with the said case; a controller for the said fulcrum-gear, and means for transmitting the rotatable movement of the said case to the said shaft for the direct rotation thereof and for transmitting the movement of the said driven gear to the said shaft for the rotation thereof thereby.

812,563. Vehicle-Wheel. Maurice G. Heitz-Boyer, Paris, France. Filed July 25, 1905. Serial No. 271,213.

Claim.—1. In a vehicle-wheel, the combination, with a rim, of a plurality of blocks bearing against the same, toggle-links connecting certain of said blocks at either side thereof, and spokes forming in connection with said links a plurality of toggle-joints.

812,573. Automobile. Herman Lemp, Lynn, Mass., assignor to General Electric Company, a corporation of New York. Filed June 4, 1904. Serial No. 211,731.

Claim.—1. In combination, a prime mover, a differential gear, a dynamo-electric machine connected thereto through said gear, and a magnetic clutch in circuit with said machine and adapted to clutch said prime mover to said gear.

812, 584. Starting Mechanism for Gas Engines. Vernon B. Miller, Philadelphia, Pa. Filed Feb. 28, 1905. Serial No. 247,671.

Claim.—1. In a starting mechanism of the class described, in combination, a crank-spindle, a starting-spindle adapted to engage the same, a sleeve in which said starting-spindle is rotatably mounted, said sleeve having a thread of high pitch, a one-way clutch connection between said starting-spindle and said sleeve, and a member having a threaded bore receiving said sleeve.

812,605. Rubber-Tire Guard. Lewis Slama, Humboldt, Nebr. Filed July 6, 1905. Serial No. 266,297.

Claim.—1. A rubber tire guard, comprising a network of alternating cruciform links and ring-like links, and means for securing the guard to a tire.

812,622. Electric Igniter for Internal Combustion Engines. William H. Walter, New York, N. Y. Filed Mar. 24, 1902. Renewed Apr. 16, 1903. Serial No. 152,982.

Claim.—1. In an electrical igniter, the combination of a hollow plug provided near its inner end with openings or slots lying inside of the ring-terminal and the latter presenting a continuous active edge of thin section, and a beveled disk-like terminal having an active edge of thin section disposed in parallel and opposing relation to the corresponding edge of the ring-like terminal and forming therewith with an intermediate sparking gap of uniform width, said ring-like terminal being presented edgewise to the disk-like terminal.

812,629. Vehicle Wheel. Manuel G. Babbio, New York, N. Y. Filed Aug. 31, 1905. Serial No. 276,562.

Claim.—1. In vehicle-wheels, the combination with a primary and a secondary hub, one loosely mounted relatively to the other, chain connections between the hubs, limiting their movement in opposite directions, a pneumatic tube located between the two hubs, being sustained by the outer hub and provided with an inner annular flange, and a check or guiding collar loosely mounted on the inner hub, having annular offsets between which the flange of the pneumatic tube is received.

812,694. Clutch. Israel H. Spencer, St. Louis, Mo. Filed Feb. 29, 1904. Serial No. 195,912.

Claim.—1. In a clutch, the combination of a shaft, a hub fixed to said shaft and having tapering runways, a drive-wheel hub having a head fitting over said shaft-carried hub, clutch-balls in said runways, and means for retaining said clutch-balls at the deepest ends of said runways; said means consisting of a rocking shift-plate, pins carried by said shift-plate extending into said runways, and throw-plate having connection with said shift-plate, substantially as set forth.

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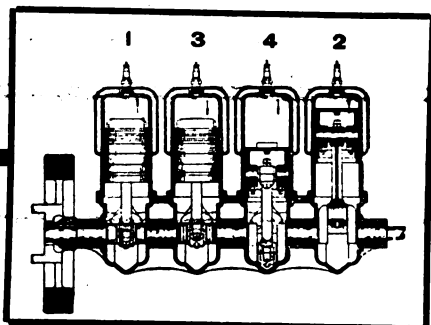
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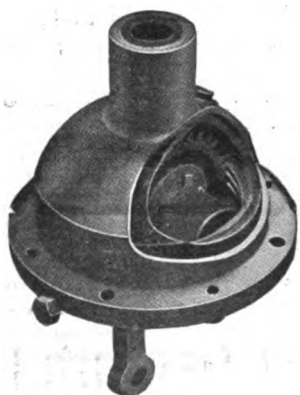
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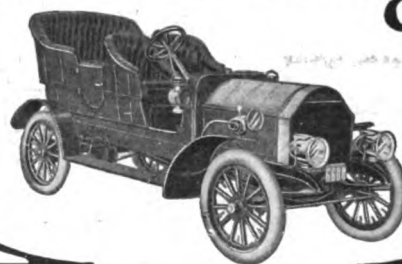
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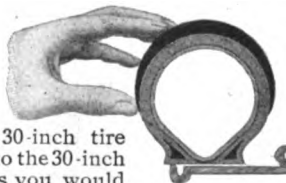
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And after you have removed such a tire a few times, the base of the tire becomes stretched, and the fabric (used to strengthen it) becomes broken in places, until this tire becomes 31 inches in diameter instead of 30, a full inch larger than the face of your wheel. So you have to bolt it down, or it will creep, tear the valve out and cause all kinds of trouble. And even then you have to keep it pumped up continually as hard as it will stand.

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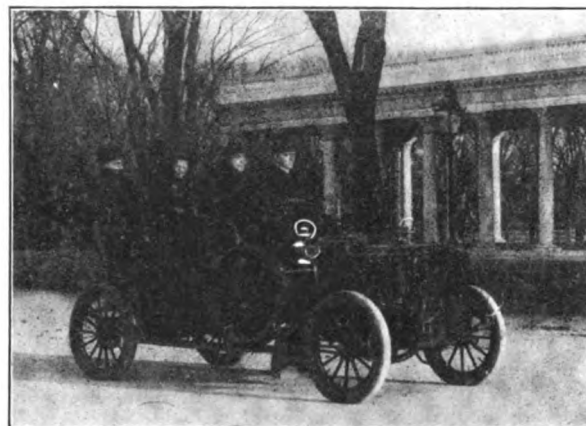
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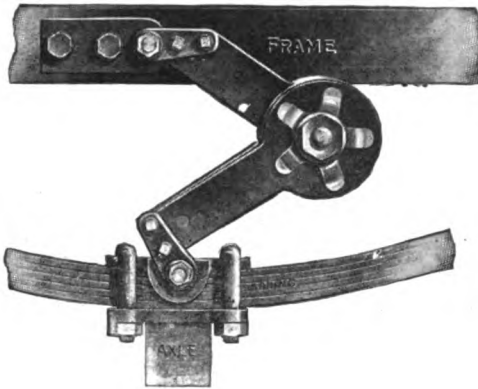
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Makes cobblestones and rough roads seem like asphalt.

New Model Absolutely Self-Adjusting. Requires No Attention After Application.

Adopted by the Pierce Great Arrow, Locomobile, Matheson, Richard-Brasier, Peugeot, Napier, Gobron-Brillié

Cars under 1,500 lbs., \$40.
(Four Suspensions)

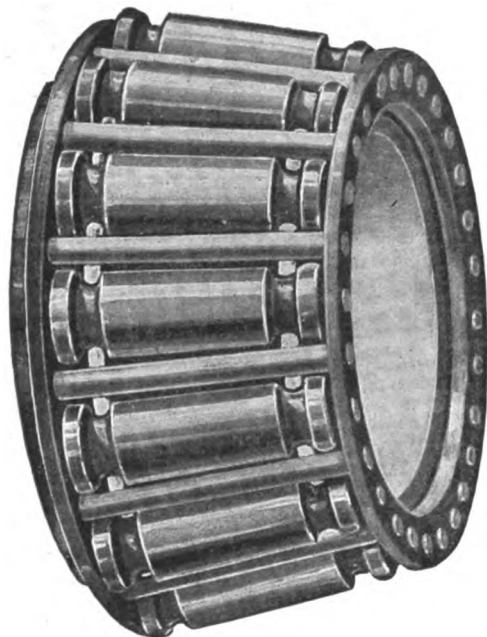
Cars over 1,500 lbs., \$60.
(Four Suspensions)

WARNING

We are the owners of fundamental patents entirely covering every practicable form of frictional retarding devices for vehicle springs, and hereby warn the trade from handling any infringing device which may be offered for sale. We also warn the trade against the use of the term "SHOCK ABSORBER," which is our trade mark.

HARTFORD SUSPENSION COMPANY,
E. V. Hartford, Pres. 67 VESTRY STREET, NEW YORK.

***We are Sole American Agents for the celebrated
GOBRON-BRILLIÉ
"The finest automobile in the world"***



77%

OF ALL THE

AMERICAN MODELS

both Pleasure and Commercial, exhibited at the

CHICAGO SHOW

ARE USING

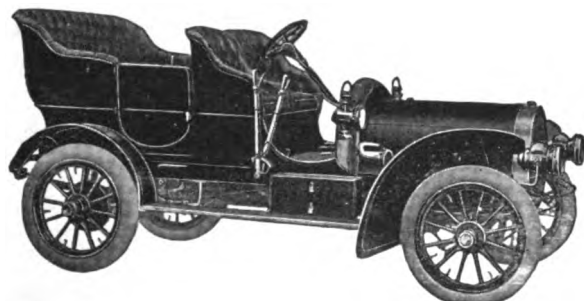
Timken Roller Bearings

TIMKEN ROLLER BEARING AXLE CO.

Main Office and Works: CANTON, OHIO.

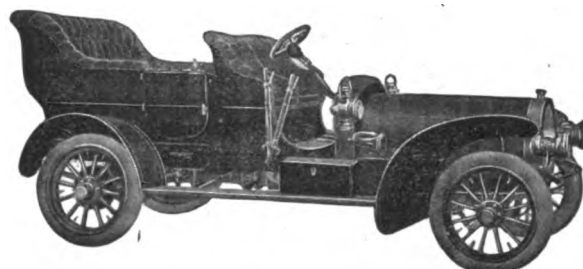


National



National Model D, 4-cyl., 35-40 H. P. Price, \$3,000.

National Model E is an innovation in touring cars that will be extensively copied. It is powerful, simply controlled, practically noiseless and its comfortable, roomy aluminum body seats seven passengers, all facing forward.



National Model E, 6-cyl., 50-60 H. P. Price, \$4,000.

WHY EXPERIMENT?

Write for Particulars.

NATIONAL MOTOR VEHICLE CO., - E. 22d Street, Indianapolis, Ind.

NATIONAL DISTRIBUTORS

Lanscott Motor Co., 163 Columbus Ave., Boston
Homan & Schulz Co., 134 W. 18th St., N. Y. City
Ralph Temple Auto Co., 311 Mich. Ave., Chicago
Tiga Auto Co., Broad and Tio, 31st St., Phila.
Robt. F. Boda & Co., 68 E. Noble St., Columbus, O.
Colonial Auto Co., 3944 Olive St., St. Louis, Mo.

Liberty Auto Co., 138 Beatty St., E. E., Pittsburg
National Motor Car Agency, 705 S. Main St., Los Angeles, Cal.
Fawkes Auto Co., Minneapolis and St. Paul
McKinley Motor Car Co., Rochester, N. Y.
Fisher Auto Co., 330 N. Ill. St., Indianapolis, Ind.

Members American Motor Car Manufacturers' Association, Chicago.



The Maxwell



Perfectly Simple
Simply Perfect

The Car With a Doctrine

The Maxwell Doctrine stands behind the construction of every Maxwell car. EXPERIENCE, not theory, is the keynote of the "Doctrine."

During the last year the unprecedented successful record of the Maxwell cars has PROVED the constructive principles upon which it is based to be RIGHT.

One of the Latest Proofs.

The Maxwell was the only car in its class to make a PERFECT SCORE in the Los Angeles-San Diego Endurance Contest of January 25th. If you are interested in advanced motor construction it will pay you to get the facts about the Maxwell "Doctrine" and the Maxwell Cars.

16-20 H.-P.
Touring Car
\$1,450

Multiple Disk Clutch
Three Point Suspension

No Pump

Bevel Gear Drive
Metal Bodies

10-H.-P.
Tourabout
\$780

Maxwell cars are sold under the positive guarantee that as good a car cannot be sold at a lower price. Send to Dept. 2 for Catalogue

BRANCHES:

Maxwell-Briscoe, Incorporated
New York, N. Y.
Morrison Tyler Motor Company
Boston, Mass.
Fisher Automobile Company
Indianapolis, Ind.

MAXWELL-BRISCOE MOTOR COMPANY

Member American Motor Car Manufacturers' Association.

Main Office: Tarrytown, N. Y.

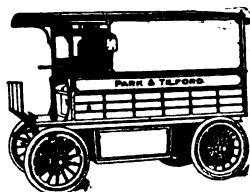
Chicago

Pawtucket

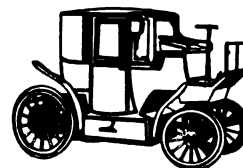
BRANCHES:

Maxwell-Briscoe Chase Company
Chicago, Ill.
Maxwell-Briscoe-McLeod Company
Detroit, Mich.
Maxwell Garage, Brooklyn, N. Y.
Richard Irvin & Company
Foreign Representatives

Everything in Electrics



From the handy
delivery wagon
to the
luxurious Brougham.



Our line includes over 100 Standard Designs of the better class of Electric Vehicles, adapted to every social need or business requirement.

Send for Illustrated Catalogue.

VEHICLE EQUIPMENT COMPANY

Borden Avenue

LONG ISLAND CITY

New York

Largest Builders of Commercial Automobiles in the World

GAS-AU-LEC

Elegant in Finish.
Luxurious in Appointments.

Built by Skilled Workmen from the Best
Materials Obtainable.

THE SIMPLEST GASOLENE CAR IN THE WORLD

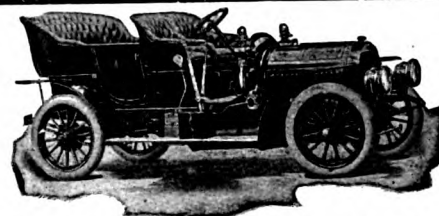
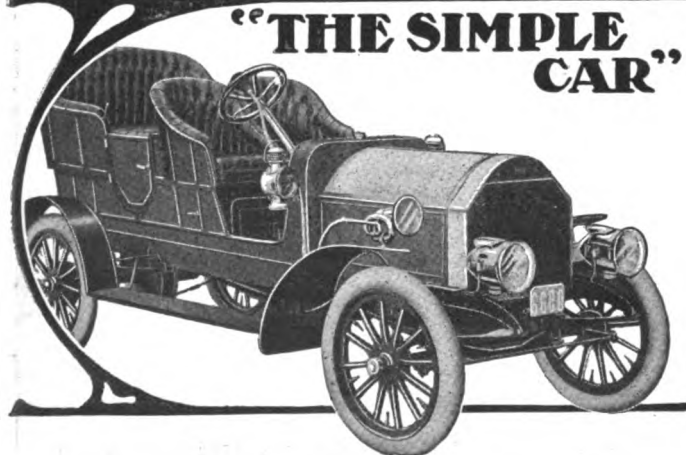
both as to construction and control and the easiest to operate and maintain.

"Marks a New Era in Automobile Construction."

10-15 Horse-Power \$5,000.

CORWIN MANUFACTURING COMPANY,
Peabody, Mass., U. S. A.

"THE SIMPLE
CAR"



IT IS NOW WELL KNOWN

THAT THE

ROYAL TOURIST

is the most reliable and most economical motor car built anywhere.
If you care to confirm this statement

ASK AN OWNER

OF A

ROYAL

THE ROYAL MOTOR CAR CO.

Cleveland, O.

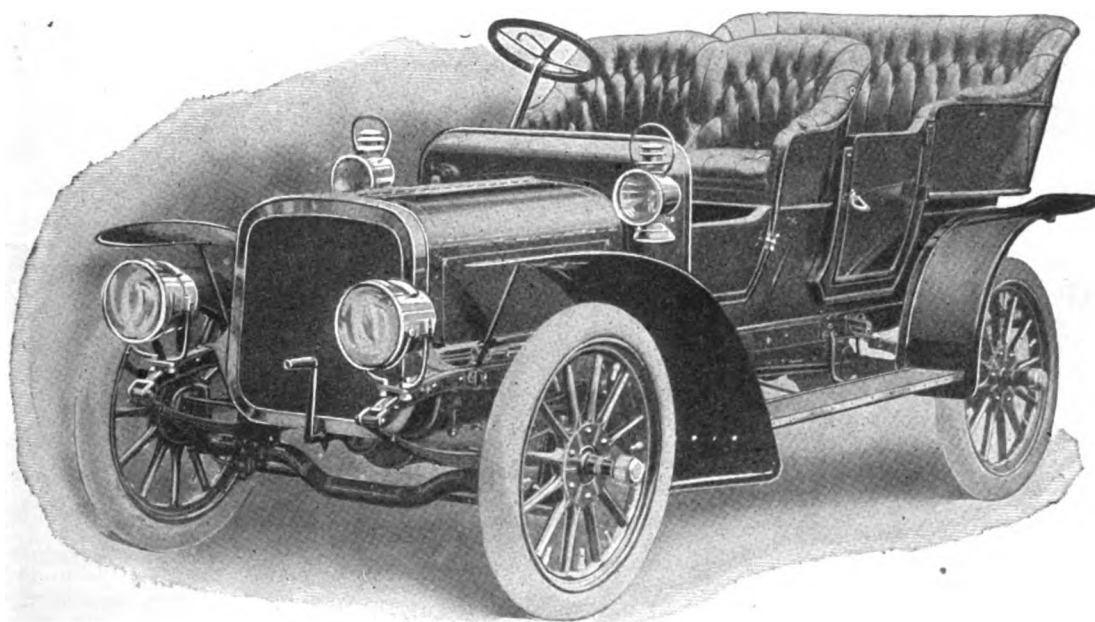
AGENTS: C. A. DUERR & CO., New York, N. Y.; G. J. DUNHAM, Boston, Mass.; THE McDUFFEE AUTOMOBILE CO., Chicago, Ill.; G. W. CAPLIN, Minneapolis, Minn.; AUTOMOBILE & SUPPLY CO., Ltd., Toronto, Ont.; MOTOR SHOP, Philadelphia, Pa.; REYBURN MOTOR CAR CO., St. Louis, Mo.; STANDARD AUTOMOBILE CO., Pittsburg, Pa.; AMOS-PIERCE AUTO CO., Syracuse, N. Y.; SCHOEFFEL CO., Rochester, N. Y.; ROYAL MOTOR CAR AGENCY, San Francisco, Cal.

Member A. L. A. M.

Aerocar

The Car for today, tomorrow and years to come.

—Built by practical men.—



24 H. P.—Four Cylinders—45 Miles an Hour—Five Passengers—Weighs Under 2,000 Pounds—Price F. O. B. Detroit, \$2,800.

The **Aerocar** has taken the automobile trade by storm because of its magnificent beauty in design and equipment; because of its perfect air-cooled motor, and because it demonstrates every claim we make for it. If there is such a thing as perfection in motor cars we have achieved it in the **Aerocar**.

The **Aerocar** from start to finish is the work of successful motor car builders. There isn't a single detail of experiment in the entire car. It is the culmination of a practical achievement in mechanical construction. The air-cooled motor of the **Aerocar** is the result of eight years' continuous, incessant testing, and for the past two years it has not been possible to make an improvement on it. It is, therefore, the time-tried, time-tested, absolutely proven successful air-cooled motor.

As with the motor, so the same practical experience characterizes the design and construction of the **Aerocar** through and through. Although the complete car weighs under 2,000 pounds, every part in the construction is more than ample in strength.

Runs as smooth as velvet. Is ready every day in the year, under all sorts of weather conditions and temperatures. Has the speed; has the power; has the strength; has the "get there" that the purchaser of a motor car has the right to expect.

Send for our illustrated literature which describes the **Aerocar** in detail. If possible, arrange for a practical demonstration, which we are always glad to give.

Some good territory is still open for good agents who write promptly.

THE AEROCAR COMPANY, Detroit, Mich.

Members American Motor Car Manufacturers' Association.

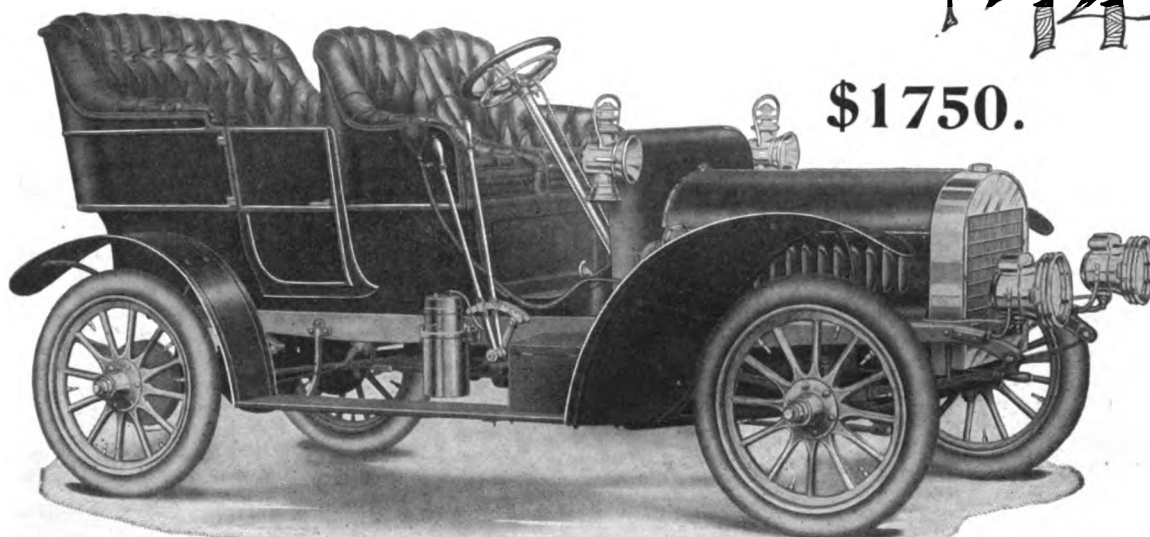
IMPERIAL AUTO CO., 1024 Boylston St., Boston, Mass.
AEROCAR COMPANY OF CHICAGO, 347-349 Wabash Ave., Chicago, Ill.
OSCAR M. BERGESTROH, Minneapolis, Minn.



Rambler

Model
14

\$1750.



It was generally conceded the financial proposition of both shows.
It is a medium weight touring car, strictly modern in design, equipment and appointments.
The logical result of years of study and development in the direction of simplicity in design and structural economy.
The power plant comprises a four cylinder vertical motor with sliding gear transmission and shaft drive.
The accessories, such as carburetter, igniting, lubricating and cooling systems, are all the latest and most approved types.
Only the concentrated efforts of a large and perfectly equipped organization render possible the production of such a car at such a price.
Not only is the first cost attractive but the structural simplicity assures the minimum expense of care and upkeep.
Your most critical inspection is invited and our catalog, giving full details, is at your service.

Thos. B. Jeffery & Company

Main Office and Factory

Kenosha, Wis.

BRANCHES:

CHICAGO—304 Wabash Ave.

BOSTON—145 Columbus Ave.

MILWAUKEE—457-459 Broadway.

PHILADELPHIA—242 N. Broad St.

SAN FRANCISCO—10th and Market Sts.

NEW YORK AGENCY—134 W. 38th St.

Representatives in all leading cities.

THE MOTOR WORLD.

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE
AND KINDRED INTERESTS

Volume XII.

New York, U. S. A., Thursday, March 1, 1905.

No. 5.

FIRE ATTACKS PIERCE PLANT

Early Sunday Morning Blaze Destroys one Building—Main Factory not Touched.

Not the main factory, but one of the detached buildings of the George N. Pierce Co.'s plant in Buffalo, was practically destroyed by fire on Sunday night, 25th inst. The building was one devoted to motor testing and bicycle assembling—the Pierce people also make one of the highest class bicycles in the world and for the storage of automobiles and repair parts, and while its destruction will entail some inconvenience and slight delay in the shipment of cars, most of the disturbance will fall on the bicycle department.

The blaze started at about two o'clock in the morning and spread with such great rapidity that at one time the whole block was threatened, but good work on the part of the firemen kept it within bounds. The Pierce main factory was untouched.

The cause of the fire is a mystery. It appeared to start in the motor testing room, no one being on or near the premises save the watchmen who guard the buildings. A small boy was the first person to discover the blaze and some valuable time was lost while he tried unsuccessfully to pull the fire alarm box. The loss, estimated at \$75,000, is fully covered by insurance.

White Gets West End Site.

The White Sewing Machine Co., last week, bought and secured title to the property on West End avenue between 69th and 70th street, which comprises several city lots and which, as soon as feasible, will be the headquarters of the New York branch. A big six-story building, part of which is occupied as a livery stable, and a single story building now occupy part of the property, and these will be renovated and altered for present use or until permanent building plans are decided upon.

Although the selection of this location "off Broadway" will probably prove a surprise in some quarters, it would seem to be an unusually wise and foresighted move, as it is in the heart of a wealthy residential quarter, close to the great cross-town ar-

tery, 72d street, through which a steady steady stream of carriages and automobiles enter on Riverside Drive, but one block west, and on which Broadway, a few blocks east, is reached over splendid roads.

Japan Begins to Open Up.

Because Prince Arisukawa, of Japan recently purchased a touring car, the fashionable folk of the Empire are now expected to go and do likewise. Some of the wise merchants are therefore preparing for the anticipated demand. The Sorin Shokwai, of Tokio, who do a large business in other American goods, are among the number. They ask for catalogues and quotations. At present there are said to be but two automobile dealers in Japan, the Nara Automobile Co. and the Osaka Automobile Co.

Suits Likely Over Shock-Absorbers.

There is likely to be legal music over the anti-vibration devices which are now springing up in such numbers. The Hartford Suspension Co. claims the patent rights to all frictional retarding devices applied to springs and are issuing warnings to that effect. It also appears that the term "shock absorber" applied to such devices, is likewise private property; it has been trade marked by the Hartford Company and can be rightfully applied only to the Truffault-Hartford suspension.

Timken to Double up Again.

Although the Timken Roller Bearing Axle Co. have but little more than completed an addition to their plant at Canton, Ohio, which doubled their capacity, they have just let contracts for the erection of other buildings that will again enlarge their facilities two-fold. The new buildings will be of the most modern fire-proof construction.

Licensees Will Discuss Advertising.

Advertising is the subject to be taken up at a meeting of the advertising managers and financial men of the companies represented in the Association of Licensed Automobile Manufacturers, which has been called for March 9th. Each member has been asked to have two representatives present.

GABRIEL BLOWS ITS HORN

And those Jobbers who Gave it no Heed Were Promptly Enjoined.

Although there were those who thought that nothing would come of it, the Gabriel Horn Mfg. Co., of Cleveland, has made good its threat to proceed against alleged infringers of the patents covering their well known horn; and their blows were struck at not the manufacturers, but at the jobbers who were selling the infringing articles.

When their published warnings passed unheeded, the Gabriel people retained as their counsel the man who had fought and won the Bell telephone and other big suits and he proceeded to such good purpose that all save two of the offending jobbers "came down." E. J. Willis and the Manhattan Storage Co., both of New York, were the two who hesitated, and as a result they were last week served with injunctions restraining them and every one connected with them from selling or otherwise disposing of infringing horns.

One luckless New York jobber who loaded up with offending horns, has been vainly trying to make his peace, pleading to be allowed to "clean up" and promising thereafter to "be good," but the Gabriel Company have simply pointed to their published warnings of months ago and declined to make concessions of any sort.

Baker's 84 Miles on one Charge.

During the Cleveland show, last week, the Baker Motor Vehicle Co., without any special preparation, decided to see what mileage one of their Baker Suburban carriages would accomplish without a recharging of the batteries. The Suburban is a two-passenger car, equipped with 24 cells, 11 P. V. Exide battery and lists at \$2,000. Its advertised mileage is forty miles. This splendid car did just eighty-four and two-tenths (84 2-10) miles at an average speed of 13 7-10 miles per hour—a performance that speaks for itself and requires no comment. The entire route was not a selected one, but the distance was made over ordinary city streets—and Cleveland streets are not the best in the world, either.

The Week's Incorporations.

Manchester, Vt.—New Hampshire Automobile and Country Club, under New Hampshire laws, without capital; corporators not named.

Groton, Conn.—Holmes Motor Co., under Connecticut laws, with \$30,000 capital; to manufacture and deal in automobile, marine and stationary engines. Corporators not named.

New York City, N. Y.—Endurance Motor Car Co., under New York laws, with \$35,000 capital. Corporators—Harold Mabie, Hackensack, N. J.; H. W. Johns, Bronxville, and A. Parker Smith, New York City.

Newark, N. J.—Consumers Tire & Rubber Co., under New Jersey laws, with \$200,000 capital; to make all kinds of tires. Corporators—J. T. Rickey and H. Reich, of Jersey City; J. W. Brunton, of Newark.

Louisville, Ky.—Kirchdorfer Automobile Co., under Kentucky laws, with \$20,000 capital; to deal in automobiles. Corporators—Joseph C. Kirchdorfer, Edward Kimmel and F. S. Clark, all of Louisville.

Jersey City, N. J.—The Ariel Co., under New Jersey laws, with \$150,000 capital; to make automobiles. Corporators—C. S. Yeagle, Holmsburg, Pa.; E. L. Barney, New York City; G. M. Osgoodby, Montclair.

Providence, R. I.—Providence Gas Motor Co., under Rhode Island laws, with \$5,000 capital. Corporators—Cyrus B. Wattles and Robert S. Foster, of Providence; and Albert K. Tillinghast, of East Greenwich.

Rahway, N. J.—Eagle Automobile Co., under New Jersey laws, with \$60,000 capital; to make automobiles. Corporators—Frank C. Vanderwater, Edwin Vanderwater, A. Gibbey Spencer, George W. Loft and Henry S. Griffin, all of Rahway.

Paterson, N. J.—Paterson Vehicle Co., under New Jersey laws, with \$50,000 capital; to sell and repair automobiles. Corporators—Millard A. Mallett, Suffern, N. Y.; John Vanderberg, Paterson; Everett A. C. Cooper, Passaic.

Jersey City, N. J.—Auto Cushioned Hub Co., under New Jersey laws, with \$100,000 capital; to manufacture hubs for automobiles. Corporators—W. M. Lawyer, Brookline, Mass.; J. C. Wayner, Lancaster, Pa.; R. Head, New York City.

Springfield, Mass.—E. L. M. Automobile Co., under Massachusetts laws, with \$15,000 capital; to deal in automobiles. Corporators and officers—President, Harry S. Elkins, 32 Beyers street, Springfield; treasurer, Harry C. Medcraft, 10 Chestnut street, Springfield.

Shawnee, Okla.—Dill Motor Power Co., of Shawnee and Arkansas City, under Oklahoma laws, with \$310,000 capital. Corporators—Enoch Hall, J. H. La Grant and R. T. Myers, of Arkansas City; W. H. Harrah, of Shawnee; Jacob Lambert, of Fairfax, and W. C. Cooper, of Guthrie.

Oklahoma City, Oklahoma.—Davis-Turner Falls Motor Road Co., under Oklahoma

laws; with \$25,000 capital; to build motor road. Corporators—Guy E. Blackwelder, Robert Chowning and C. T. Williams, Oklahoma City; J. B. Dickerson, C. B. McCluskey and James Draughton, Davis.

Liberty Trees Sprouts \$300 Cars.

Not to be outdone by Peoria, Ill., Greenfield, Ind., has "developed" an inventor. He is also a wonder worker who carries the 1776 name Liberty Trees in befitting fashion. Mr. Trees has "received valuable patents on an improved automobile that will revolutionize the manufacture of these machines." He has also completed his first car "which is the equal of any \$1,000 automobile in the city." Mr. Trees may manufacture these machines and sell them to the public for the moderate sum of \$300. The car weighs 600 pounds and employs a two-cylinder gasoline engine. That is all that is known about it.

Seeking a New Bedford Site.

Harvey E. Guptill, a manufacturer of shoes at Haverhill, Mass., and E. L. Dorr, of the same place, want to establish a motor car manufactory at New Bedford, Mass., and have accordingly written Mayor Thompson to that effect. They state that they have taken up the matter with the Board of Trade, but want to get in touch with the city officials. The name of the concern anxious to locate in New Bedford is not given, but Lamont H. Chick, of the Merchants' National Bank of Haverhill, is named as a reference.

No Reduction on Ramblers.

One of those little instances that prove how closely the advertising pages of the Motor World are scanned, occurred through error in pricing the Rambler Surrey Type 3, in the issue of February 15. The price was given as \$1,300, fifty dollars below the catalogue figures. At once, letters of inquiry began to pile in on T. B. Jeffery & Co., who were at some pains to explain that no reduction had been made and that the \$1,300 price was an error.

Firestone Gives a Banquet.

The Firestone Tire and Rubber Co., during the Cleveland show, last week, gave a banquet on Friday night at the Hollenden Hotel, to forty of its heads of departments and office employees and their wives, following a visit to the show. The dining room was prettily decorated with roses and carnations and the occasion, as might be expected, was a happy one.

Parts, not Cars, for Kitto.

The Motor and Components Co., which recently was formed in Des Moines, Iowa, through efforts of William H. Kitto, formerly identified with the Simplicities Auto Co., of Middletown, Conn., has leased the building at 119-121 East Walnut street, Des Moines. For the present no cars will be made, it is said, the company applying itself to the manufacture of parts.

In the Retail World.

Dante Cusi, Mexico City, is among the agents for the Wayne car appointed during the past week.

G. H. Barnes is preparing to "open up" in Poughkeepsie, N. Y., with the Reo as a leader. He will locate at 207 Church street.

Theodore Randolph, of Nyack, N. Y., has purchased a place in Burd street, and will open a garage on April 1. He will represent the Maxwell-Briscoe cars.

The large, double tenement house on Main street, Waterville, Maine, known at the Buck block, has been acquired by Hennings & Belyea, automobile dealers of Portland. It is understood they will convert it into a garage.

Titman, Leeds & Co., of Philadelphia, have taken the agency for the Studebaker cars, which were represented by the La Roche Co. The new company will locate at 317-319 North Broad street, the Quaker City's automobile row.

F. O. Babbitt and T. B. Matthews will open a garage and repair shop on Willow street, Fitchburg, Mass., having leased the Brown building for the purpose. The place, which is 75x25 feet, will be fitted up to suit the needs of the new firm.

C. S. Henshaw, the New England representative of the Thomas car, has taken quarters in the Park Square Automobile Station. The location is, however, merely a temporary one, as Henshaw is seeking something more suitable to his needs.

A garage exclusively for electrics, now under construction on South Main street, between Eleventh and Twelfth streets, Los Angeles, Cal., will shortly be opened by L. A. Sanders and M. K. Benaugh. W. K. Cowan, the Pacific Coast Rambler agent, will turn over his electric business to the new firm.

Owing to the death of Charles E. Zimmerman, who was president of the Zim-Rock Motor Car Co., New York agents for the Stoddard-Dayton, a new official board has been necessitated. At a meeting of the directors, P. Freeman Rockett, the manager, was elected president, and Clarence McKenzie, president of the Standard Brake Co., was elected treasurer.

Smiths Will Direct the Sales.

In all probability the salesmanship of the Olds Motor Works, Detroit, left vacant by the resignation of Roy D. Chapin, will not be filled. The duties of the office have been taken over by F. L. and Angus Smith, under whose direction the sales department will hereafter be conducted.

More Room for Milwaukee's Wagon.

The Four Wheel Drive Wagon Co. will enlarge its factory at Vliet and 34th streets, Milwaukee, Wis. An addition, 50x118 feet and 19 feet high, will be erected and another story will be added to its present building. Work will begin immediately.

GAVE SUKERNEK VERDICT

He Returned Car to Agent who Refused to Receive it—Then Came the Suit.

Judge Hammond and twelve good men and true, had to listen to the tale of woe of a would-be automobilist, in the Municipal Court of Buffalo, recently. It was brought out that one Louis Sukernek, of Emporium, Pa., had invested in what was called a "big tonneau touring car" for which he paid \$553 in cash and gave two notes of \$500 each to the plaintiff, who was John A. Cramer, a Buffalo dealer. Sukernek alleged in his complaint that the car was guaranteed to be good for any and all hills about Emporium, otherwise it was to be returned and the deal called off.

Witnesses told an affecting tale of the new owner's experience with the car. The new owner, a friend and a representative of the agent, started to take the car to its home town. At East Aurora, the man from the garage decided he had gone far enough and turned the car over to the two Pennsylvanians; then the trouble began. It took four hours and a half to reach Holland, ten miles further along, because the engine gave up the ghost every few hundred feet, nothing but a vigorous session at the crank inducing it to turn over again after each spell. Both men blistered their hands and the machine became hot all over and smoked like a furnace. The men likewise became hot and smoked, but what they said did not go on record.

The machine was sent back to Buffalo, repaired, and then shipped to Emporium, and again a representative undertook to show off its paces, on the hills roundabout, but in the middle of the first rise it balked, groaned wearily, smoked furiously and finally came to rest. With the aid of four man power it was pushed up the hill. A second attempt gave the same result and the buyer with the name decided that auto-mobiling was not the real thing after all and shipped the car back to the agent, who refused to receive it and it was sent to a storage warehouse pending the outcome of the litigation. The jury sympathized with the automobile buyer and declared against the agent.

Quinby to Build Big Addition.

J. M. Quinby & Co., the automobile and carriage body makers, are about to enlarge their plant in Division street, Newark, N. J., by the erection of a four-story and basement brick structure adjoining their present building. Last fall the concern purchased a tract running through from Orange to Division street, 100x128 feet in dimensions, with the idea of adding another building to the plant, and as soon after May 1 as possible work on the extension will be commenced. The new building will cover an area of 40x100 feet, and will front on Orange street. The old Metropolitan

Rink building, in Division street, at present occupied, a one-story structure covered with iron sheathing, 80x200 feet in dimensions also has been purchased by Quimby & Co., and will be utilized in connection with the extension.

Puncture of a Tire Combine.

Late last week some one hoaxed the New York Globe into printing a tall story of a big "combination of tire manufacturers" that had been formed "to fight the tire trust," the "preliminaries of which were perfected during the automobile shows." Joseph M. Gilbert, sales manager of the Firestone Tire and Rubber Co., was quoted at some length and was among other things made to say that "a fund of \$50,000 already has been subscribed for the battle," and that "our membership includes all those who refuse to recognize the G & J patent."

Unfortunately for the story and the "combination," Gilbert denies knowing anything about either. In response to the Motor World's inquiry, he wires:

"Entire statement false. Never heard of fund or any such proposition. Deny it absolutely."

The other concerns said to be included in the combination are the Pennsylvania Rubber Co., Michelin Products Selling Co., Harburg Tire Co., Amazon Rubber Co., Ajax Standard Rubber Co. and the Electric Rubber Co. At the Pennsylvania Co.'s New York office, Manager Hayes said there was no truth in the story and Manager Winans, of Michelin, was even more specific. The Motor World's inquiry was the first he had heard of the matter. He denied the report unequivocally.

Equitable Enters Automobile Trade.

The Equitable Distributing Co., Boston, which heretofore handled only bicycle goods, has removed to 24-26 Columbus avenue and "taken on" automobile supplies. Originally the Equitable Distributing Co. was composed of a number of New England bicycle dealers, who banded under that title to make co-operative purchases and obtain the "long" discounts, just as the National Association of Automobile Dealers are now attempting to do. The concern proved a most indifferent success and the concern soon became merely a jobbing house. As such, it was recently incorporated under the laws of Maine.

New Questions for Jurors.

They try automobile damage suits in true western style out in Denver, Col. In a damage suit brought by Filmore Waldron against George E. Hannan, tried in Denver, last week, the question "Did you ever ride in an automobile?" was put to every prospective juror. If he answered in the affirmative he was excused, the counsel maintaining that if he had he would probably favor the defendant. The case is still on.

MIXED CARS AND BOATS

Portland, up in Maine, Holds a Little Show—Those who were There.

Portland, Maine, is holding its first automobile show this week, and while it is termed an automobile show it is really a combination car and boat exhibition, half of the spaces being taken by boat builders, of which there are not a few in and around Portland.

The show opened in the Auditorium on Monday morning and will continue throughout the week. The hall is scarcely large enough for the purpose and several of the city's dealers preferred showing their new models in their own garages, where they have more room than could be secured in the Auditorium. Among the dealers who are not in the show are the Allen Motor Car Co., Stoddard-Dayton and Reo cars; Roy F. Elliott, Rambler cars; L. C. Gillson Automobile Co., Maxwell, Stanley and Ford cars, and the Eastern Motor Car Co., who have the Wayne.

Practically the same decorative scheme that has characterized other local shows is carried out in the Auditorium. The floor is covered with green burlap and the same material in red and green conceals the walls. The posts are finished in Flemish and the rails around the exhibits are colored crimson. The signs are neat gold letters with black outlines framed in two-inch borders. Naturally there is an abundance of flags and incandescent lamps.

The list of exhibitors and their wares follows:

J. A. Dowling, Pierce-Arrow, Studebaker and Fiat cars; W. L. Blake & Co., marine engines; H. J. Willard Co., Inc., Peerless, Winton, Elmore, Buick, Cadillac, Packard and Franklin cars; Maine Motor Carriage Co., Thomas, Stevens-Duryea and Olds cars; H. C. Stratton & Co., American Mercedes; Herbert A. Harmon, White cars; Peabbles-Shaw Boat Co., marine engines; N. A. Jacobs Sons, motor boats; Mianus Motor Works, marine engines; W. F. Safford Mfg. Co., marine engines; Andrews Boat Co., motor boats; Carey Electrical Works, J. H. C. dynamos; Aseptic Drinking Cup Co., drinking cups; James Bailey Co., supplies; Elastic Tire Filling & Motor Co., tire compound; Vacuum Oil Co., lubricants; Detroit Automobile Vehicle Co., Crown delivery wagon; Thomas Laughlin Co., marine specialties; Smith & Langmaid, marine engines; Angier Co., supplies; Fairbanks Engine Co., marine engines.

Horse Exchange to Become Garage.

It was reported this week that the Horse Exchange, located at Broadway and Fiftieth street, New York, had been sold by W. K. Vanderbilt for nearly \$1,000,000, and is to be transformed into a big garage and sales-rooms. The purchaser is not named.



THERE IS BEAUTY IN FISK TIRES

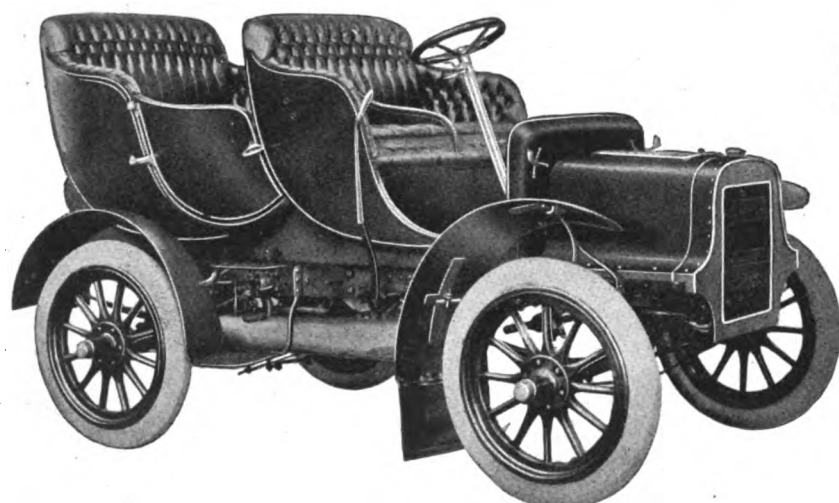
Their many marked virtues need only a glance to be recognized. THEY WILL BE CHEERFULLY DEMONSTRATED UPON APPLICATION, BY ANY OF OUR REPRESENTATIVES.

...FISK BRANCHES...

NEW YORK: 754 Seventh Ave.	BOSTON: 239 Columbus Ave.
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SYRACUSE: 423 S. Clinton St.	BUFFALO: 893 Main St.
CLEVELAND: 318 Euclid Ave.	LOS ANGELES: 1034 Main St.
DETROIT: 262 Jefferson Ave.	CHICAGO: 1251 Michigan Ave.
KANSAS CITY: 1330 Main St.	ST. LOUIS: 3908 Olive St.
SAN FRANCISCO: 114 Second Ave.	

IF YOU DESIRE TIRES THAT WILL BE EASY ON YOUR CAR, COMFORTABLE AND UNANNOYING TO YOU, BESIDES ABSOLUTELY SAFE, SEE THAT YOUR EQUIPMENT IS "FISK". Write us for a copy of "Tire Talk"

The Fisk Rubber Company,
CHICOPEE FALLS, MASS.



CADILLAC

MODEL M

\$950.00 F. O. B. Detroit

The worthy successor of our 1905 Model F, of which more were made and sold last year than any two other models combined.

The following letter is one of many which shows WHY:

Cuba, N. Y., January 30, 1906.

'CADILLAC MOTOR CAR Co., Detroit, Mich.

Gentlemen:—September 1, 1905, I purchased from the Centaur Motor Co., Buffalo, one Model F Cadillac. This machine I have used for livery and have made upwards of 2,000 miles. It has not caused one moment of trouble or one cent for repairs. It has made all the hills in this section, which are very bad, with perfect ease, no matter what the load might be. When I purchased it I did not know any more about a machine than a boy of ten years, but found it to be very simple in every detail. I cannot speak too highly of the Cadillac, it is certainly a winner.

F. L. HALLACK."

IS IT ANY WONDER THAT CADILLACS SELL?

CADILLAC MOTOR CAR CO., - - - Detroit, Mich.



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Those who are interested in motor vehicles will find the facilities and information of our office always at their command.

To Facilitate Matters Our Patrons Should
 Address us at P. O. Box 649.

Cable Address, "MOTORWORLD," NEW YORK.

Entered as second-class matter at the New York, N. Y., Post Office, November, 1900.

NEW YORK, MARCH 1, 1906.

Four-Cycles and Two.

While it is generally conceded that the four-cycle motor as at present constituted, has arrived at a stage where further improvement must of necessity be very gradual, there is no disposition on the part of designers representing an advanced school of thought to consider it as beyond the reach of influences that may in the next few years change it very materially. Dimensions, compression, valve placing and the like are essentials upon which the majority are in accord and as to some of these items the policy of letting well enough alone may not be amiss, though in the final calculation, the value of experiment, often abortive when made, appears in its true light.

Probably more attention is being paid at the present time to improvement in the manner of operating the auxiliaries of the motor itself, such as the valves and ignition gear, than to any other single feature, and this in turn influences the placing of its accessories, such as the circulating pump. Just how great an improvement has already

been brought about where these portions of the mechanism are concerned may be realized from the almost total elimination of the noise produced by the old valve actions with their poorly cut gears, though one of the causes that contributed to this in no uncertain manner was the discarding of the automatic inlet.

And it is in the varied new arrangements of the cam shaft to be found on some of the 1906 cars, that the first step toward eliminating as many as possible of the parts connected with this essential, is in evidence. There have been attempts in the past to use but a single cam shaft and still retain the opposite placing of the valves, but they have not endured, sooner or later going the way of their predecessors. Others have succeeded them and still others will do likewise in the future until every part that may possibly be done without has been eliminated.

The advantages of opening both sets of valves from a single cam shaft accessibly placed, are many and obvious, not the least of which is the fact that the number of small parts involved is reduced to the minimum. As evidence of the trend of design that favors bringing the operating shaft as closely as possible to the parts to be moved, may be cited the elevation of the igniter cam shaft on one or two cars employing the make and break system. Doubtless this same desire to reduce the engine to the fewest number of moving parts is responsible for the increased amount of attention being accorded the two-cycle principle at the present time. It finds further substantiation in the "valveless" type of four-cycle motor which made its first bow at Chicago recently.

Whether the elimination process will in the end wind up by eliminating the four-cycle engine itself in favor of the two-cycle, or whether changes in design will sooner or later place both on a par where this particular design is concerned, is naturally difficult to foretell at this time, but it is plainly evident that the four-cycle engine is still far from being a finality, despite the high degree of efficiency to which it has been brought.

About the Motor Cab.

Gasolene driven trucks, delivery wagons, omnibusses, railroad cars—all these and more are with us in numbers that leave no possible room for doubt as to their success. The degree of reliability to which the purely pleasure vehicle has attained made

this a foregone conclusion. Then why not the gasolene driven cab? Why not, indeed?

Cities like New York have been looking forward to the poor man's cab for untold years, but so far as surface indications are concerned, it is no nearer to-day than ever. Electric cabs have been introduced in various large cities of the country, but their influence in reducing the cost of this form of transportation has not been startling, to say the least. And it is certain that the horse hauled cab holds out no promise in this direction. This process of elimination brings the question back to the gasolene driven cab.

The suggestion is not such a startling one as may appear at first sight, for Paris has officially adopted this form of transportation after exhaustive trials of other powers. The cabs accepted by the authorities for use in the French capital are the product of one of the best known makers there. They are of the landaulet type with accommodation for three passengers in all, one of whom sits by the driver. Simplicity has naturally been the guiding star throughout the design of such a vehicle and the result attained appears to be such as is eminently fitted to endure the constant and trying service imposed by this form of work.

With its high efficiency, great economy of operation and indefinite radius of action, the gasolene cab holds forth great promise of speed and luxury in this field. With a carrying capacity no greater than that of the horse drawn type that has so long held the field, its earning capacity would still be far greater and would undoubtedly be an effective earner of dividends, even at a rate of fare much below the maximum permitted by law in this country where cab service comes higher than probably any other spot on the globe.

London has proved in an eye opening fashion that the gasolene driven omnibus can catch the nimble small coin in a manner that makes it superior to the trolley car as a provider of net profits, though the fares charged are but little more than half of those in force here. Endless arguments could be brought to bear to show that there is nothing so well adapted to the needs of such a service, nor one that could possibly prove so popular with the general public that must be relied upon to support it as the gasolene cab. But to those familiar with the capabilities of the car in other lines, they will readily suggest themselves. There is certainly a most excellent oppor-

tunity for some progressive American manufacturer to make a name for his product and to make a very substantial addition to his bank account as well, in this hitherto untried field.

The Setting of the Valves.

Time was when the owner of a car knew as little about the setting of the valves of his motor as he did about the complex processes involved in the conversion of crude para rubber into the tubes and shells of his tires, which, as he was assured, contained nothing else except the fabric which formed the skeleton. Times have changed, however, and the average owner of the day knows quite as much about the intimate workings of his machine as did the professional chauffeur of a year or two ago.

Nevertheless, the average owner has yet a good deal to learn before he could qualify to take hold of any motor and so adjust its valve gear that it will at once and without further ado yield the best possible results. For valve setting is ticklish work at best, and work which had best been relegated to those who make it their exclusive business, and know the characteristics of the motor under discussion. There are times, however, when such men are not to be had, as, for instance, when the half-time gears have been removed in overhauling the machine, and the mechanic has neglected to "spot" them in order that they may be re-assembled in their proper relation. At such times, and when any repair work involving a possible alteration in the periods of opening of the various valves is being done, it is well for the owner himself to understand thoroughly the principle involved, and the methods of adjusting the mechanism to produce the correct results.

At first blush, it would seem that this is no very difficult matter after all, since the functions of the cycle are well defined by the position of the piston, and may readily be traced by anyone who has an understanding of the four-cycle principle. There are, on the other hand, certain conditions which are not commonly reckoned with in demonstrating the simple principles of the thing which have a considerable bearing on the action of the motor, especially when running at high speed. These are the time taken in opening and closing the valves, with the incidental momentary throttling of the gasses in consequence, the possible restriction of the gasses in their passage through the ports, causing in poorly designed motors, the phenomenon which is

known as "wire drawing," and the inertia of the gasses, or in plain words, their momentum, which is solely due to the velocity of their flow to and from the cylinder.

On account of these factors which are commonly conceded to have a most important bearing on the functioning of the machine, it is customary to open and close the valves, not directly on the dead centre of piston travel, as in the common course of things should be done, but somewhat earlier or later as the case may be. Thus, on account of the tendency to throttling of the incoming gases, it is customary to hold open the inlet valves, when mechanically operated until the piston has commenced its upward travel, and to close them only when the beginning of compression would tend to reverse the flow in the induction pipes, and discharge the contents of the cylinder. Similarly, the exhaust valves are opened before the piston has reached the end of its travel on the explosion stroke, and are held open until it has passed the upper dead point, and has commenced to travel downwardly, thus creating a partial vacuum in the cylinder due to the increase in volume. This naturally delays the opening of the inlet valves until the exhaust has fully closed, and considerably alters the arrangement which would be adopted but for the factors above mentioned.

According to the most recent European practice, the inlet valves are opened when the piston has traveled about $1\frac{1}{2}$ per cent. of its downward stroke on the suction period, and are held open until the stroke is complete, and the piston has traveled from 7.7 to 10.8 per cent. upward on the compression stroke. Similarly, the exhaust valves are opened when the piston is from $8\frac{1}{2}$ to $11\frac{1}{2}$ per cent. of the stroke from the end of its down stroke, and at the end of the expansion period, and are held open until the upper dead centre has been passed and the piston is down $1\frac{1}{2}$ per cent. of its stroke.

This practice, of course, does not apply to most of the motors in use, the custom up to this time having been to close the exhaust and open the inlet more nearly at the upper dead centre. But where in comparatively high speed motors, it is possible to alter the timing, it will be found that better results will be obtained by this means than otherwise would be possible. It is a very wise plan for the purchaser of a car to ascertain and make note of the distribution for possible future reference, and where

COMING EVENTS.

February 24-March 3—Philadelphia Automobile Show, under auspices of the Philadelphia Automobile Trade Association.

March 5-10—Buffalo Fourth Annual Automobile Show, under auspices of the Buffalo Automobile Trade Association.

March 10-17—Boston Automobile Show, under auspices of the Boston Automobile Dealers' Association.

April 2-7—Toronto, Ont., Automobile Show.

this has been done, there can be no difficulty in resetting the valves at any time, but even so, it is well to bear in mind that certain advantages are to be gained by the use of a rational amount of "lag" and "lead" in the setting of any motor.

One of the taking features of the Motor Boat Show which is holding forth at Madison Square Garden, New York, this week, is an aquatic runabout in which the motor is started by an ingenious twist of the steering wheel which for the time being is diverted from its normal function and made to serve the purpose of the more ordinary starting crank. When it is desired to turn over the motor, all there is to do is to push forward the steering column, thereby disconnecting it from the other mechanism and throwing it into gear with a ratchet contrivance which is connected by means of a sprocket chain to the crank shaft, give it a sharp twist in the proper direction, and there you are. Apropos, when the motor car inventor can construct a similar arrangement for the steering wheel of the ordinary car, which is precisely analogous to this in every respect, he will find himself in a position to make all his rivals sit up and look around.

It was bound to come sooner or later and now it appears to have arrived. There have been discussions as to what would happen when the motorman of the trolley car, the engineer of the locomotive, the operator of this, that and the other method of transportation ad infinitum, should suddenly become incapacitated through illness, death or any cause which prevented him from controlling the mechanism of his charge, and now it has been extended to the motor 'bus. Suggestions galore are, of course, forthcoming, though probably they will go no further than figuring in the discussion.

RACED UP MOUNT LOWE

Good Going in California Hill-Climb—E. R. Thomas's Mixture of Sweet and Bitter.

Los Angeles, Cal., Feb. 22.—Ideal weather, enthusiastic crowds, representative entrants, a sand-papered course and perfect administration all combined to make California's fourth hill-climbing contest and the first to be held this year, an unparalleled success. The contest, promoted by the Automobile Dealers' Association of Southern California, was held to-day upon the incline which begins at Pasadena, 904 feet above sea level, and ends at Altadena, 1,500 feet altitude, where the famous golden poppy fields are located and where the noted trolley line cuts into Mt. Lowe. The distance was three miles, averaging a grade of $3\frac{3}{4}$ per cent. The surface of the course was remarkably smooth, it being one of California's many oiled highways, so it is not surprising that excellent time was made.

Society was out in force, and lined the course in automobiles, horse-drawn vehicles, with motorcycles and ordinary bicycles. A better location for a hill climb could not have been chosen, and, taking the magnificent highways and salubrious climatic conditions into consideration, this form of sport is bound to become popular in Southern California. Only those who have been in this part of the state can fully appreciate the magnificent view unfolded from the summit of Mt. Lowe or Mt. Wilson. The San Gabriel Valley, the richest in the world, stretches out in plain sight as also the other valleys to the area of 2,500 miles. On Washington's Birthday the air was clear and the thousand or more spectators on Mt. Lowe could see the ocean 40 miles distant, while the islands more than forty miles at sea could be discerned in outline, as well as the snow capped peaks hundreds of miles away.

For genuine hard luck, E. R. Thomas, the Buffalo manufacturer, who has been sojourning in California for a fortnight, can tell a tale that must produce sympathetic words of condolence from all who hear it. Mr. Thomas was extremely anxious to have the new Thomas "Flyers" represented in the climb, but the cars ordered by the local agency were no farther west than La Junta, Col. He persuaded the Santa Fe railroad to make up a fast freight and send it through on schedule. The three Thomas cars arrived here yesterday, so there was little time to limber them up and get familiar with the course. Mr. Thomas started from Pasadena this morning, got on the wrong road and ran into a sea of adobe mud, from which he was finally extricated and set aright. Then his chauffeur ran the car into a wagon, shearing a wheel of the latter. Then in the event for large touring cars, the driver took the turn at too high a rate of speed, tangented off into the vineyard at that point, backed out of the soft soil and made for the other corner. The right

front tire collided with a freshly trimmed grape vine, which cut it, and at the next angle it burst. To add to its troubles, the driver stripped his gears and almost landed into the six-foot ditch which parallels the road.

In spite of the ill-luck which attended Thomas's own private car, the other two made splendid showings, the one driven by Frank Siefert winning in the large touring car class, establishing such fast time that none of the drivers wanted to go against it in the 'free-for-all, so that it was adjudged the winner in this also. Siefert's time for the three miles was 4:58 $\frac{1}{2}$. Two 35 horsepower Pope-Toledos, one entered by the Western Motor Car Co. and driven by a representative of that concern, and the other driven by E. C. Anthony, finished second and third in this class, while a Packard, with A. B. Bussman up, was fourth. The Thomas of the Arrowhead Hotel Co. came up fifth.

A 22 horsepower Buick was the surprise of the day, and fully justified all claims made for its hill-climbing capacities. It won the two events for runabouts and was beaten only by a Reo in the class for light touring cars. H. L. Olive, in a 30-35 horsepower Stoddard-Dayton, finished first in the class for cars costing between \$1,500 and \$2,500, being clocked at 6:26 $\frac{3}{4}$. A 20 horsepower Stevens-Duryea was second, less than one second ahead of a Frayer-Miller, driven by E. H. Hawes. D. C. McCan, driving a 30 horsepower Franklin, won in the open runabout class from an 18 horsepower White, with H. D. Ryus at the wheel. The touring cars were required to carry a full complement of passengers, that is four, and the runabouts, two passengers, averaging a per capita weight of 150 pounds. The cars were in full touring equipment. The timing was by means of telephone. The summary:

RUNABOUTS COSTING UNDER \$1,000.

Pos.	Driver.	Car.	Time.
1.	Dr. Brown	22 h. p. Buick	6:07 $\frac{3}{4}$
2.	F. A. Bennett	14 h. p. Ford	7:07
3.	E. Bennett, Jr.	16 h. p. Wayne	7:25
4.	R. Passavant	12 h. p. Autocar	7:57
5.	Gale Automobile Co.	8 h. p. Gale	10:28 $\frac{3}{4}$

RUNABOUTS COSTING UNDER \$1,500.

1.	Dr. Brown	22 h. p. Buick	6:05
2.	Leon T. Shettler	16 h. p. Reo	6:41 $\frac{3}{4}$
3.	F. A. Bennett	14 h. p. Ford	6:43 $\frac{3}{4}$
4.	F. P. Crosby	16 h. p. Premier	7:10 $\frac{3}{4}$
5.	F. Bennett, Jr.	16 h. p. Wayne	7:52
6.	Grover T. Garland	12 h. p. Franklin	*

RUNABOUTS—FREE-FOR-ALL.

1.	D. C. McCan	30 h. p. Franklin	6:32 $\frac{3}{4}$
2.	H. D. Ryus	18 h. p. White	7:14 $\frac{3}{4}$

TOURING CARS COSTING UNDER \$1,500.

1.	Leon T. Shettler	16 h. p. Reo	6:47 $\frac{3}{4}$
2.	M. Hamilton	22 h. p. Buick	7:35 $\frac{3}{4}$
3.	D. L. Wold	18 h. p. Reliance	8:09 $\frac{3}{4}$
4.	W. K. Cowan	18 h. p. Rambler	9:14 $\frac{3}{4}$

TOURING CARS COSTING BETWEEN \$1,500 AND \$2,500.

1.	H. L. Olive	30-35 h. p. Stoddard-Dayton	6:26 $\frac{3}{4}$
2.	Western M. C. Co.	20 h. p. Stevens-Duryea	7:02 $\frac{3}{4}$
3.	E. H. Hawes	24 h. p. Frayer-Miller	7:03 $\frac{3}{4}$
4.	R. C. Hamlin	12 h. p. Franklin	8:22 $\frac{3}{4}$
5.	Success Auto Co.	30 h. p. Winton	8:43

TOURING CARS COSTING OVER \$2,500.

1.	Frank Siefert	50 h. p. Thomas	4:58 $\frac{1}{2}$
2.	Western M. C. Co.	35 h. p. Pope-Toledo	5:04 $\frac{3}{4}$
3.	E. C. Anthony	35 h. p. Pope-Toledo	5:06 $\frac{3}{4}$
4.	A. B. Bussman	24 h. p. Packard	5:24 $\frac{3}{4}$
5.	Arrowhead Hotel Co.	50 h. p. Thomas	5:33 $\frac{1}{2}$
6.	R. C. Hamlin	20 h. p. Franklin	6:19 $\frac{3}{4}$
7.	E. R. Thomas	50 h. p. Thomas	*

* Did not finish.

MOTORING IN SOUTH AFRICA

It's Practical, but it has its Peculiarities—Some of them Described.

Writing from Grahamstown, a South African physician, Dr. E. Gerard, who has had various motoring experiences in that far-off land since he imported his first belt-driven crudity in 1902, experiences which have ranged through every degree of variety from the gay to the very harrowing, tells in a recent issue of the Autocar what he considers to be the general specifications of the idea car for that country. He ought to know something about his subject, for he has driven five different cars of his own, three of them of English make, one French and one American, and can point out weaknesses in each despite the fact that they were not of unknown marks in any case. Also, he gives a practical testimonial to the utility of the motor car, and explains what are the peculiar conditions imposed on a machine intended for service there.

"My ideal car should be," he says, "weight about 1,500 pounds at the most, four cylinders, horsepower about 12-16, removable tonneau, wheels about 34-inch. I have never used wire wheels, but should think that if well looked after they would be better than wooden wheels. The wooden wheels of the last two cars I have had have lasted well. They were specially built strong. The tracking in this country would perhaps be better if the wheels were a bit further apart. I find on the bad roads that it is an advantage at times to have the wheels a bit narrower than the wagon tracks, as you can mount the middle hump with one of your wheels. This hump on the country roads is a terrible bugbear to motorists, as from the constant trekking of bullock wagons the road is worn on each wheel track and the hump is left in the middle. This is often 12 inches high and will catch your silencer or front axle. The car should have at the very least 12 inches of ground clearance—more if possible—and a slow-running engine—about 800 revolutions per minute—so that it will pick up quickly after stopping to go through a cross drain. The drains are to carry off storm water, and are found every hundred yards or so on roads and frequently on flat roads. In districts they are better made and take them at a fair pace. I find that in Albany they are a disgrace. The car must be specially strong to stand the frequent twist to which it is subjected through these sluits, as you must have the springs long and and you must have padding on the springs would rattle any car. It is very rough on heavy car tires and heavy expense for high tension ig

These I charge myself with a small engine and dynamo, which acts well, but I think I should like to try a magneto next time.

"I have now quite given up horses for two years and done my entire work on two motors. My experience is that as far as I can make out, although I can give no actual figures until May, that it works out about one-third more expensive than keeping three horses as I used to do; that I can finish my work more quickly; that, instead of having to sleep in a small farmhouse and put up with a lot of discomfort, I can go back to town the same night, much less tired than by using a buggy. I often have to do from twenty-five to thirty miles out to see a patient, and although a motor can only manage to average about from twelve to sixteen miles an hour on these roads, it means a lot on a journey which if taken with horses, including outspans, can only be done at an average of six miles an hour.

"One of the greatest drawbacks to motor-ing out here is the unbridged rivers, which, after rain, are troublesome to get through. I think the commutator should be placed on the dashboard; the carburetter, also, should be placed as high as possible."

Club Tries the Gasolene Cocktail.

"Gasolene cocktails" appeared on menus last summer, but the formula had always remained a secret until the annual banquet of the Alameda County Automobile Club, at Oakland, California, last week. Beside each plate was placed a miniature gasolene can which was labeled "Automobile Cocktail," and the formula as follows: Half glass gasolene No. 72; three jiggers of cylinder oil; spoonful of graphite grease. Stir well with monkey wrench and garnish with a 3-8 locknut." Many of the guests were chary about tasting it at first, but subsequently it proved that the ingredients were very much like those of any other "appetizer." A novel feature was sprung on the members at the beginning of the festivities. All lights in the banquet room were turned down, leaving the room in darkness save on the stage where were two powerful searchlights and what seemed to be the front of an automobile. The result was that guests entering the darkened room seemed to be meeting a real automobile at night on some country road.

Leading the banquet these officers were President, Dr. George W. Rudolph; President, Charles J. Heeseman; secretary, George Gilman; treasurer, R. J. governors, the officers, Dr. N. W. Wickham Havens and

President of Pittsburgs.

Automobile Club, at week, chose the following: George E. Tur W. Linford Smith; W. Darley; third er; treasurer, Geo. C. Wolff,

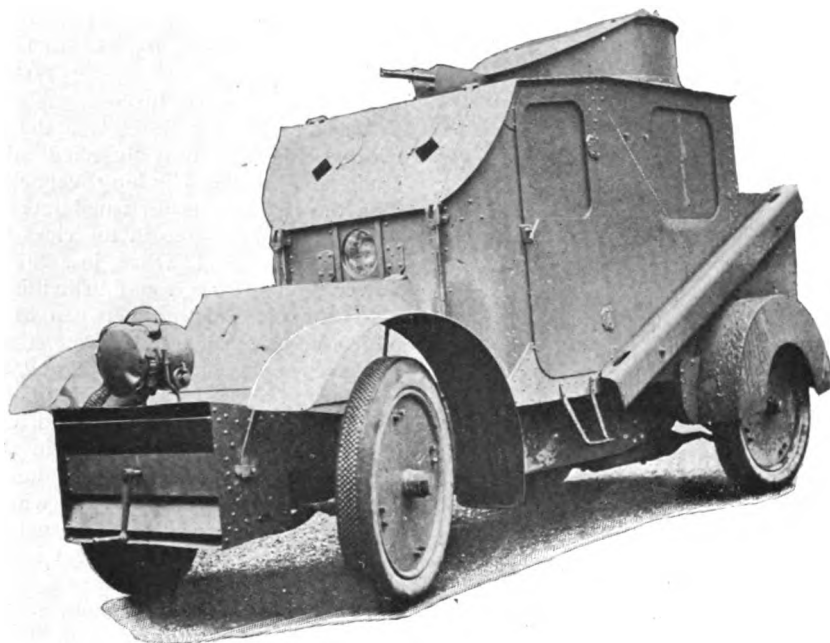
CARS FOR WAR PURPOSES

Supposed to be for Russia's use—How they are Armed and Armored.

Evidently Russia is preparing for further trouble, for it is reported that the eight armored cars being constructed by Charron, Girardot & Vogt, in Paris, are destined for the use of the Russian government. One of these cars was recently completed and subjected to trial. The chassis is, with few changes, of the standard 30 horsepower type turned out by this firm. These alterations take the form of stronger springs and axles, and the provision of a device by

same kind, though its features are all similar. Its armament consists of a 120-millimetre rapid-fire rifle, installed in a projecting hood in the rear of the body, means being provided for giving a clear sweep so that it may be fired at any point of the compass. In running order and with complete equipment the total weight is three tons and the machine is said to be capable of a maximum speed of 25 miles an hour.

The greatest secrecy has been preserved all along both as to the building of these cars, as well as to their final destination. All the construction has been carried on behind closed doors and all the numerous trials carried out are said to have taken place at night on unfrequented roads. Germany has done something in the way of



means of which the engine can be started by the driver from his seat.

The entire body is enclosed by steel plates designed to be proof against rifle fire at a distance of 130 yards. When not in action a large section of the armor covering the driver's seat can be lifted allowing a clear view ahead. This is lowered when engaged and is provided with small openings, but the latter may in turn be closed by sliding panels. Naturally, everything about the car is designed to be proof as far as possible against disablement through being struck, the radiator, bonnet and wheels all being armored. The last named are of the steel disc type and are shod with pneumatic tires. As part of the equipment of each, two complete spare wheels are carried and a further provision against breakdown is a double carburetter; the equipment also includes two portable tracks, carried one on each side of the car and which can be quickly laid down to enable the machine to cross ditches and narrow streams.

In appearance, this new type of armored car, which is painted a khaki color, differs considerably from its predecessors of the

building armored automobiles herself and it is reported that the German government dispatched a special commissioner to keep an eye on the French war cars. Rumors as to the destination of these cars have been various, including everything from the French to the Russian government, and probably fear that they are to be added to the French war establishment is responsible for the German commissioner.

The Detachable Starting Crank.

Next to the apparently superfluous bit of advice not to start your car before you are in it, which was disregarded with rather serious results by a Jerseyman, recently, comes the admonition not to leave the starting crank behind. The detachable starting crank is becoming decidedly passe, but there are hundreds of cars in use that have it. Next to forgetting to take it along, comes placing it in the car so carelessly that it is shaken out on the road. More or less advice as to just how to start the engine without the crank, has appeared from time to time, but it will be found considerably easier in case the starting crank is not missing.

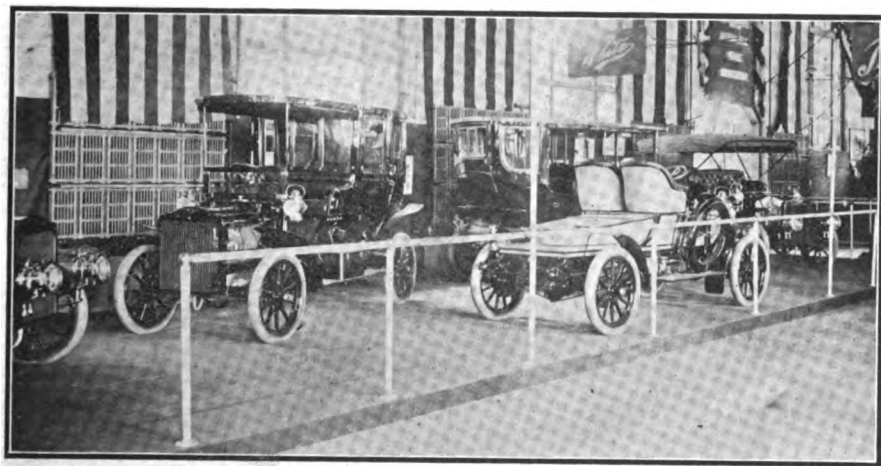
QUAKERS DISPLAY THEIR CARS

Philadelphia's Flag-Dressed Show now in Progress—The Wares Exhibited.

Philadelphia, Pa., Feb. 29.—For the week Father Penn has discarded his broad-brimmed Quaker hat for a cap and his octagonal shaped spectacles for the more modern goggles. This is automobile week in this staid old town of homes and meeting houses and the Philadelphia fifth annual show is on. The doors in the National Export building were opened Saturday night, and judging from the rush of people that swarmed to get in and of the crowds that

out on the second floor where the accessories' displays hold forth.

One amusing incident occurred on the opening night. There is a real band that plays catalogued concert music. Everybody had a gorgeous time except the unfortunate rotound German who plays the "big fiddle"—that's what they call the 'cello in Philadelphia. The good Herr Something or Other was sawing away for dear life when a merry soul in the balcony conceived the brilliant idea of dropping peanut shells on his bald pate. (That is another proof of the Quaker City's backwardness—no public function is complete without peanuts). What, with dropping his big "fiddle" bow about every other note to whisk peanut



THE WHITE EXHIBIT AT PHILADELPHIA.

have since jammed the aisles and exhibition spaces, Philadelphia will be heard from in the buying world this year.

So far as the show itself goes, it is distinctively local, even more local than the exhibitions just held in Cleveland and Detroit. It is held this year under the auspices of the Philadelphia Automobile Trades Association, and to make the affair eclipse anything heretofore attempted, the association early secured the services of Chester A. Campbell, who has managed the Boston shows. Mr. Campbell's handiwork is apparent. The decorations are the finest that have ever marked an industrial exposition in this city. The national colors in every conceivable shape—flags, large and small, bunting, knotted and draped, wide bars of red, white and blue—are tastefully blended to hide the yellow barrenness and sharp corners of brick and columns of the walls and supports of the big room. Grass-green matting covers the floors, and a harmonious red tapestry hides the walls. The railings are white and gold and the signs over each exhibit are in script lettering on Flemish oak. The most attractive feature of the decorations are the continuous bowers of apple blossoms which divide each booth. While not real, they are natural enough to deceive all but the most persistent observer. Though not so elaborately finished, the same scheme has been carried

shells from his cocoa top and stopping between bars to shake his fist at the grinning imp in the gallery, the 'cello artist made Verdi's divine "Fantasia Rigoletto" sound like the bleachers when the home team makes a two-bagger with three men on bases.

Most of the leading makers of cars are represented, with the exception of the Pope, Franklin and Olds lines, handled in Philadelphia by the Quaker City Automobile Co. As this concern could not obtain sufficient elbow room in the show building, it is holding an "independent" show at its new salesrooms at 138-146 North Broad street. The main floor of the spacious six-story building is tastefully decorated and a band will render selections throughout the week. The Pope-Toledo, Pope-Tribune, Pope-Waverly, Pope-Hartford, Franklin and Olds cars are on exhibition. Another firm to hold a show of its own is the Tioga Automobile Co., at Broad and Tioga streets. They handle the National cars.

The exhibitors in the show building and the wares they are displaying are as follows:

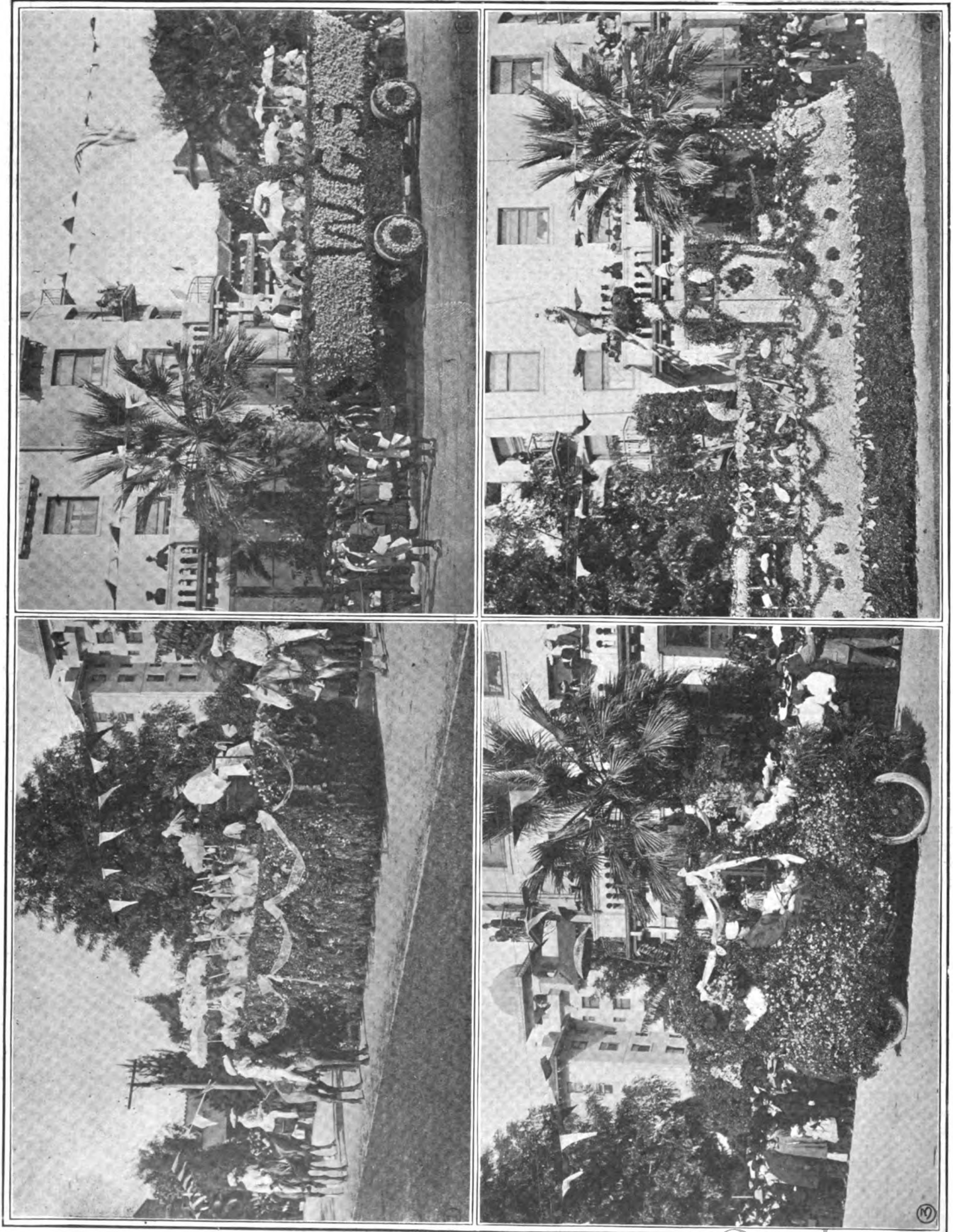
Hamilton Automobile Co., Corbin, Stoddard-Dayton and Queen cars; Locomobile Co. of America, Locomobiles; White Garage, White cars; La Roche Automobile Co., Studebaker cars; Ford Motor Co., Ford cars; Dalsimer Automobile Co., Haynes

cars; Martin & Hart, Thomas and Waltham-Orient cars; Paul P. Rippien, Prest-O-Lite gas tanks and supplies; Motor Shop, Tourist cars; Reo Motor Car Co., Reo cars; Pennsylvania Electric Vehicle Co., Columbia gasoline and electric and Buick cars; Keystone Motor Car Co., Autocar and Packard cars; Foss-Hughes Motor Car Co., Pierce, Cadillac and Baker cars; Thos. B. Jeffery & Co., Rambler cars; Ranier Co., New York City, Ranier cars; Kelsey Motor Car Co., Maxwell cars; St. Louis Motor Car Co., St. Louis cars; Napier Motor Co., Napier cars; Gawthrop & Wister, Elmore cars; Winton Motor Car Co., Winton cars; Knox Automobile Co., Knox cars; Diamond Motor Car Co., Jackson and Cleveland cars; H. M. Ambler, Welch cars; F. P. Young, Glide cars; Hartford Suspension Co., Tru-fault-Hartford suspensions; Reading Standard Cycle Mfg. Co., Reading, Pa., Reading; Standard bicycles and Thoroughbred motorcycles; J. L. Gibney & Bro., tires and sundries; Iroquois Iron Works, Iroquois trucks; MacDonald & Campbell, clothing; Rose Mfg. Co., Neverout lamps; Mercedes Import Co., New York City, Mercedes cars; W. W. Taxis, parts; Smith & Mabley, Panhard, Renault, Simplex and Mercedes cars; Brazier Automobile Works, Marmon cars; James T. Halsey, Halsey trucks; J. H. Mitchell, Mitchell delivery wagons; N. A. Petry, Weed chain tire grips; Puritan Soap Co., cleansers; Consolidated Rubber Tire Co., tires; Mors Automobile Co., New York City, Mors cars; Hoskins & Howell; Reed Haverstick & Co.; Voorhees Rubber Mfg. Co., Jersey City, N. J., tires; J. W. Jones, New York City, Jones' Speedometers, etc.; William C. Robinson & Sons' Co., lubricants; Penn Automobile Supply Co., sundries; Pennsylvania Rubber Co., Jeanette, Pa., tires; Charles E. Miller, New York City, sundries; J. H. Jolley, parts; Keystone Lubricating Co.; Penn Petroleum Co.; George W. Nock Co.; E. Teel & Co., Medford, Mass., tire covers and tops; H. A. Connor, Samson tires; Fairmount Engine Co., Chadwick cars; Way Muffler Co., mufflers; Michelin Tire Co., Michelin tires; Hutchinson Electric Horn Co., New York City, Hutchinson electric horn.

Shipped 17 Carloads of Cars.

On February 25th, there left Kenosha, Wis., what is thought to be the largest shipment of automobiles ever made—a train of 17 carloads. The automobiles are Ramblers, of course, and are destined wholly for their San Francisco branch and not for distribution among sub-agencies. There were 67 Ramblers in the shipment, the freight charges on which amounted to \$6,630.

According to a German source, there are but 250 automobiles in Russia; what is even more remarkable is that 180 of them are Oldsmobiles of the familiar curved dash variety.



AUTOMOBILE FEATURES OF THE PASADENA (CAL.) FLORAL FEST OF 1906.

TO CUT CONSTABLES' GRAFT

Motorists Urge the Passage of Bills that will Make Persecution Unprofitable.

Eight bills, each of which proposed more or less change in the existing law relating to automobiles, were the subject of the hearing given by the committee on roads and bridges of the Massachusetts legislature, at Boston, Mass., on Friday, last. Nearly all the clubs of Massachusetts sent large delegations to the hearing and individual automobile owners and dealers made up a large assemblage.

The committee first took up the bills relating to the disposition of fines received from automobilists. One of the measures put in by Representative Samuel L. Porter, provided for the use of the fine money on the State highways. Another bill, by Foster C. Parker, calls for the use of not only the fines, but of the registration and licensing fees on the highways.

Counsel for the State Automobile Association, Francis Hurtubis, Jr., opened the hearing for the automobilists who, he said, are in favor of having the fines devoted to highway improvement, as such a law would prevent the petty prosecution conducted by town and city officers. He claimed that town constables often exceeded their authority in holding up automobilists, and said that from May 20 to October 19, 654 automobilists paid fines aggregating \$6,457. There were also many fined who pleaded nolo. Mr. Hurtubis mentioned Leicester, Weston, Lincoln, Hingham, Sudbury, Wrentham and other places, where the constables have been particularly active. He claimed that short courses are used and that the methods employed are unfair to the automobilists. Many of the arresting officers make good pay arresting automobilists. He said that Sudbury maintains a police force of eight men on Sundays and holidays to trap automobilists, and he thought this force would be materially reduced if there were no monetary incentive.

President Speare of the Bay State Automobile Association, stated that the automobilists are in favor of good roads and want to help along the movement. They desire also to have removed the incentive to enforce the law for purposes of revenue only. The automobilists do not object to speed regulations; they are necessary to prevent abuse. In his opinion, the speed limit is too low and there is no discrimination between a case in which the speed limit is exceeded by only a small margin and reckless driving. He thought that automobilists should be warned the same as drivers of horses are warned.

The Worcester Automobile Club appeared in favor of the bills in the person of

D. L. Gay, who said that in July the Leicester constable signed at the Worcester Central Court for fees amounting to \$101.78, in August for \$55.80, and in September for \$232.76, about \$500 for three months' work. In September the club took up the policy of appealing cases, and there were few convictions. He thought the bills would stop arrests for revenue. Game and fishing fines go to the State and most other fines go to the county.

Judge Prescott Keyes of Concord was called upon to give the view of a justice. He said that there undoubtedly had been much abuse of the law by those who enforce it. The law has not been administered as a regulation for safety on the highways, for which it is designed, but has been administered throughout the State as a law for revenue. The judge said that he had driven an automobile 15,000 miles. If the fines go to the Commonwealth the law will be enforced with equality. He favors a law against reckless or dangerous driving rather than the existing speed limits.

Leicester, which has a national reputation as a motorphobic community, was represented by Selectman Chauncey Smith. The speaker read his address, in which he classed automobilists with burglars and other lawbreakers. His suggestions for legislation were a minimum rate of ten miles and a maximum rate of twenty miles, with penalties of jail sentences. He proposed a tax of \$1 per horsepower (which a committee-man said was unconstitutional), and wanted some method of distinguishing the cars owned by dealers. The hearing on the other bills was then postponed.

Lamont Wins Twice on Ormond Beach.

Two handicap races formed a part of the annual Washington's Birthday carnival held on the beach at Ormond, Fla., and they probably created more interest among the hotel crowd and the natives than did the ill-fated international carnival which utilized those sands a month ago. Seven fully equipped touring cars, carrying two passengers each, competed in the six-mile handicap, and six in the two.

The events were run with a two-minute control at each turn, all the contestants starting and finishing in front of the grandstand in front of Bretton Inn. The two-mile handicap was won by B. A. Lamont, who drove an eight horsepower Cadillac, with a handicap of two minutes. He finished in 4:55. W. A. Adrian, 20 horsepower Stevens-Duryea (0:10), finished second, in 3:21, and William Whitney, in the same kind of a car, with the same power, was third, in 3:27. His handicap was 14 seconds. In the six-mile handicap, B. A. Lamont had another easy victory, this time driving a 30 horsepower Locomobile, with a handicap of 1:45. He finished in 6:05. William Whitney was second, in 13:33. He drove a 20 horsepower Stevens-Duryea, with 78 seconds' handicap. E. R. Bellman, 15 horsepower Panhard (1:45), finished in 10:03.

FOR TOLLS AND TELEPHONES

One More Freak Bill Presented in New Jersey—Frelinghuysen Reduces Fees.

Evidently New Jersey wants to play the "whole hog" or none. Senator Minturn, who, by the way, is a member of the judiciary committee, which has the Frelinghuysen and Jackson measures under consideration, on Monday introduced a bill in the legislature, which goes even those choice specimens "one better." It is not stated who the author is, whether or not he resides in the state or whether he is sound of mind and body, particularly the former.

The measure provides for the establishment, under the supervision of the State Road Supervisor, of toll houses and gates at intervals of ten miles on the main traveled highways, to be equipped with telephones to collect toll from automobiles, ten cents from each person riding. It would virtually make all persons who ride in "America's Russia" a convict, as they would have keepers looking after them continually. The time of every car will be taken on passing through the toll gate and then telephoned on to the next station, then if the driver arrives there sooner than he ought, a constable will be in waiting to escort him to the nearest justice of the peace to be held in bail. If, at the trial he is convicted, his license is to be revoked for one year. The annual license fee, by Senator Minturn's bill, is to be increased to five dollars per year, part of which is to go to the different counties for road repair. The money extracted at the toll gates is to be turned over to the township collectors weekly. The toll keepers are to be paid \$15 per week and mounted policemen are to be stationed on all boulevards, with unlimited power to arrest.

Simultaneously with news of the advent of the Minturn bill, it is announced that Senator Frelinghuysen, the New Jerseyman, introduced an amended act, which will be reported out of the judiciary committee some time this week. Very little improvement is noticed as a result of his pruning. The license charge of 75 cents per horsepower is abandoned and in its place is a provision that each car of 30 horsepower or less shall pay a fee of \$3, and each machine of more than 30 horsepower, \$5. The driver of a car of 30 horsepower shall pay \$1 as a license fee and that of a car of more than 30 horsepower, \$2.

Lee Wants Motorists to Stop.

Assemblyman Lee, last week, introduced into the New York legislature a bill requiring automobiles to slow down before passing restive horses and to come to a full stop if the driver of the horse-drawn vehicle holds up his hand. It embodies no other radical features.

Jersey Road Closed to Motor Cars.

There is one highway in New Jersey where automobiles are forbidden, and it will not be the only one where motor cars will not be seen, if Senator Freylinghuyssen's bill is allowed to pass. This particular road, however, is the one leading to the government powder works at Picatinny. Major O. J. Mitchell, the commandant, has placed a flag pole in the road, on which waves an American flag, surrounded by signs reading, "No automobiles allowed."

When Freeholder John D. Smith, of Rockaway, chief of the village fire department and a politician, encountered the obstruction, he sent for Major Mitchell and remonstrated, saying that it was against the laws of the State to in anywise obstruct a highway. The Major informed him that the State had ceded the grounds to the Federal Government, and that it had absolute jurisdiction.

Smith called a meeting of the Rockaway authorities, and suggested a trip to the government works in automobiles to demand that the flagpole be taken down with the trespass notices.

"What's the matter with notifying the Governor," said one. "You know they have soldiers up there, and our Executive can call out the National Guard if necessary to enforce the laws."

Just before the time agreed on to go to Picatinny one freeholder became nervous of visions of bristling cannon. Others became similarly afflicted and the trip was given up. Then they proposed taking the matter before the Morris County Grand Jury.

Date and Route of Herkomer Contest.

It has finally been settled that the date of the competition for the Herkomer Trophy is to be the week of June 6th to 13th, next. The event, which will be on a larger and more ambitious scale this year, will be controlled by a joint committee from the German Imperial, Bavarian and Austrian automobile clubs. It will be open to all touring cars of 16 horsepower, or its recognized equivalent, 2½-litres cylinder capacity, or over, owned and driven by members of a recognized national automobile club. Each car must be capable of carrying four persons comfortably and must be provided with an engine bonnet, mud-guards, three lamps, two brakes, muffler and sprag device to prevent backing down hills. The entry fee is \$75 and will be received up to April 15 by any of the three clubs named. The event is not to be run unless at least 60 entries are received.

Each car will be required to carry an official observer, and the cars will be locked up over night at the end of each daily stage. Forty-five minutes each morning will be allowed for oiling up, replenishing supplies and adjusting brakes. The contest will include speed trials and a hill climb, the latter to be held at Semmering, near Vienna. In addition to other information which the

motorist desirous of entering a car must furnish, such as the type of car, name of owner and driver, maker's certificate as to engine dimensions, serial number and class of fuel, he must also state whether he is insured against accident or not and in what company. The first stage will be from Frankfort to Munich, from there to Linz and then on to Vienna, where a day will be spent. From Vienna to Klagenfurt, to Innsbruck and then back to Munich.

Mayor Weaver Makes a Speech.

John Weaver, Philadelphia's reform mayor of distinct personality, was a guest at the banquet of the Germantown Automobile Club, last Saturday night. He addressed the motorists and after telling a funny story of a breakdown, said there was nothing more exhilarating than a ride in an automobile going ninety miles an hour, and almost in the same breath said that the speed limits of the city must be enforced. Among other things he said:

"There is nothing more exhilarating than to ride in a big machine at the rate of ninety miles an hour—but don't do it within the city limits—go over to Jersey. I am willing to do anything I can for the autoists. We want the speedway completed and the Wissahickon drive widened for the autoists. Furthermore, we want cars built in America to equal in speed those made in Europe. In the November campaign I know how the American built machines carried me around to meetings and helped me smash another 'machine,' but often they were not fast enough. I want to say that the speed regulations within the city must be enforced. A certain park guard may be promoted for recently arresting a certain chauffeur who was exceeding the limit in Fairmount Park."

Maryland to Have "Orphans' Day."

The Automobile Club of Maryland has become a corporate body, the incorporators named being M. Gillet Gill, C. Warner Stork, H. M. Rowe, Richard J. Leupold and J. S. Dietrick. It was decided at the last meeting that an orphan's day parade should be held the latter part of May or the first of June, and a committee appointed to look after it. It also was settled that the headquarters of the club should neither be in the building of the Motor Car Co. nor in the Garage, and a committee was appointed to select suitable club rooms.

Expedient to Prevent Skidding.

Somewhere the suggestion has been made that as a simple expedient for the prevention of skidding, a pair of light chains be fastened to the rear axles and allowed to trail on the ground by the side of the tires and slightly in advance of the tread. By this means, so it is claimed, when there is any tendency to skidding, the ends of the chains will roll under the tires and check their side-slipping.

End of the Alcohol Hearing.

Since the close of the hearings of the opposition interests to the passage of a bill exempting industrial alcohol from taxation, some of the members of the Ways and Means Committee of the House, before which all the testimony has been presented, are in favor of an additional hearing of the favoring forces to rebut the evidence brought out by the wood alcohol people, but the prevailing opinion seems to be that the case for free alcohol has been made out so clearly as not to require any further testimony.

At first the hearings at which the wood alcohol interests were so largely represented appeared to surprise some of the members of the committee, who had not expected such a large delegation of opponents, and who had further anticipated that the case of the opposition would be presented with much less assurance. The further progress of the hearings, however, has so largely reassured advocates of the legislation that even the doubters now question the wisdom of holding further hearings in rebuttal of the opposition testimony.

It has been found that the members of the committee who were formerly in favor of the plan are standing firm and that even the principal opponent of the bill in the committee is likely to be neutral rather than antagonistic because of the fact lately made plain to him that his constituents include a large number of persons who are for the bill as well as a number who are against it. Secretary Shaw, Chairman Payne and Commissioner Yerkes have made statements showing that there is nothing to be feared on the score of the loss of revenue, despite which one of the members of the committee still harps on the subject and holds out on that account.

Strong efforts are being made to secure the approval of Speaker Cannon for the bill and it is believed that the opinions of Secretary of State Shaw and Chairman Payne of the committee will have considerable weight. The speaker has not yet committed himself, but it thought that a decision will be forthcoming in the very near future.

West Indies Becoming Popular.

That the West Indies are becoming popular for midwinter tours was evidenced by the number of automobiles taken down on two steamships last week. On the Magdalena, bound for Jamaica, no less than seven touring cars were on board, and the Virginia carried a large number consigned to Colon.

Races in Texas in April.

The Houston, Texas, Automobile Association, in conjunction with the Houston Driving Association, has an automobile race meet on the tapis for April 20 and 21. An effort will be made to secure some fast cars and drivers from the North.

NEW THINGS IN TWO-CYCLES

Car with Ingenious Engine and Carburetter —Motor Reversed by Spark.

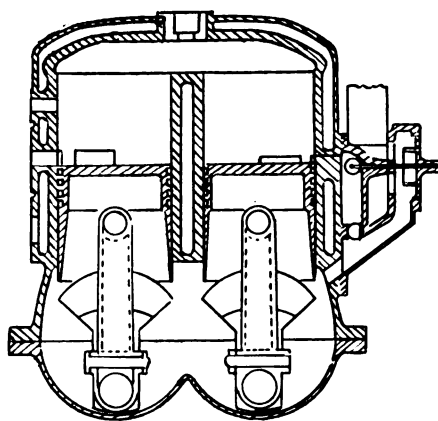
Some of the ingenuity of designers who have hitherto devoted their attention to evolving odd and striking forms of the four-cycle engine, has been sidetracked over to the two-cycle principle. At least, so it would seem to judge from the number of novel forms of the latter which make their appearance from time to time. One of these is the creation of an English concern, the Valveless Motor Co. This British firm has, in fact, evolved an entire distinctive system upon which they turn out cars, but interest naturally centers in the motor, which embodies many unusual features. It is known as the Lucas Valveless motor and is not altogether a newcomer.

It is, in brief, a two-cylinder, two-cycle, reversible engine, with but a single U-shaped cylinder, having two pistons, one combustion chamber and 2 flywheels. Just how such a seeming anomaly that practically amounts to a contradiction in terms, is possible, is best explained by a reference to the sectional drawing of the motor. From this, the manner of making two cylinders out of one and with but a single combustion chamber, will be clear. As the engine is of the two-cycle type, the crank case is, of course, sealed, both the inlet bypass to the combustion chamber and the carburetter being in evidence at the right. The former is, of course, provided with a check valve, as shown, or "an automatic non-return," as the Briton is fond of dubbing it, while the latter is very simple. In place of the usual float feed it employs a diaphragm controlled by a helical spring against which the suction of the engine must act. Its movement is limited by a collar. The entire engine is water jacketed, including the dividing wall between the two pistons that are actuated by the same explosion in the common combustion chamber.

The cycle of operations of the engine is as follows. At the position indicated by the sectional drawing the pistons are at the extreme end of their downward stroke and are about to compress the charge which has already flowed into the combustion chamber and is prevented from being forced out again by the check valve. At the same time, the upward stroke of the pistons creates considerable suction in the airtight crank case which draws in a fresh charge through the common inlet and outlet leading to the latter and the bypass. The pistons rise and fall together and the charge is fired by one plug centered in the head of the cylinder, as shown. The revolution of each crankshaft is, however, in a opposite direction. Though but two counterweights appear in the illustration, there are four in all, two on each end of the crankshafts; there are also two independent fly-

wheels. On the completion of the down stroke, the exhaust port at the left opens slightly in advance of the uncovering of the inlet. At 1,000 r. p. m., this motor is said to develop 13.5 horsepower.

As for the remainder of the car, it is likewise of novel design and construction. The frame is formed of heavy angle iron and is entirely enclosed from beneath by a sheet metal apron extending practically the whole length of the chassis. The radiator consists of horizontal tubes so disposed as to form a bonnet with an open end in front, but the engine is not placed beneath it—a fact that is at once evident both from its size and its great height from the ground. The space covered by this radiator bonnet is utilized to protect the cone-



shaped fuel tank, while the water tank forms the dash.

The engine is placed crosswise at about the center of the chassis, and as in addition to its system of counterweights and pistons, its two flywheels revolve in opposite directions through the medium of gearing not shown in the illustration, its operation is said to be particularly free of vibration. Lubrication is provided by two means—pressure from the engine and a worm pump located in a casing placed in an accessible location just beyond the left hand flywheel and protruding through the frame. Here, in fact, are centered most of the vital accessories, for in addition to housing the oil pump, this casing also contains the governor and commutator. The oil is regulated by a sight feed placed on the dash through which it is forced by the pump.

From the sight feed glass it drops into funnels terminating the ends of the leads to the crank case into which it is drawn by the suction of the engine. The oil is returned from the crank case by the crank chamber pressure.

One of the features of the transmission is the fact that it requires no reverse, as the direction of the rotation of the engine itself is reversed by advancing the spark to the maximum point, where the circuit is suddenly broken and the engine slows down running on momentum, then the circuit is closed again and the engine starts in the opposite direction. Forward move-

ment is regained by the same process, a commutator switch being provided for this purpose which requires but a turn of the wrist to operate it. All the low tension wiring is encased in copper tubing. The drive is by a single chain from a sprocket on the right hand shaft to an intermediate shaft carrying two additional sprockets with chains to the rear axle which is provided with a differential. These two chains and sprockets represent the two speeds forward, or high and low gear, and they are controlled by a double jaw clutch which engages either of them to a central wheel keyed to this intermediate shaft, the operation of changing gear being through the medium of the usual side lever. This form of transmission is said to be very effective while the engine itself develops ample power to make the car a good hill climber.

The Position of the Driver

The uninitiated frequently ask why it is that the operators of large touring cars are seated on the right hand side instead of the left, which would obviously seem to be the most convenient places as rules of the road require that all vehicles going in opposite directions turn to the right, in passing. There appears no very good answer to the question so far as American cars are concerned. In England, where all vehicles pass on the left in meeting, the location of the operator on the right hand side is readily accounted for. This question came up for discussion in a New York garage the other day, and M. J. Budlong, president of the Electric Vehicle Company, makers of Columbia cars, who was present, said that his concern made two cars operating on the right hand side and one car operating on the left. He said that the general preference of chauffeurs, as well as of owners who do their own driving, is for the right hand seat, as this leaves the driver's right hand free to operate the levers.

"In country and suburban driving, which is really the principal use made of large touring cars," said Mr. Budlong, "the position of the operator's seat is immaterial so far as the meeting of other vehicles is concerned, but in city traffic left side operation is the better and we make our light 18 horsepower car, which is extensively used for town driving, to operate on the left. In addition to the advantages of this in running through thick city traffic, the left hand side is preferred by owners for city service as it leaves the right hand free to be occupied by a guest, who, in getting in and out of the car when it is standing with its right hand side to the curb, as is required by many city ordinances, is not obliged to climb over the steering wheel or go around into the street."

"The A. B. C. of Electricity" will aid you in understanding many things about motors that may now seem hard of understanding. Price, 50c. The Motor World Publishing Co., 154 Nassau Street, New York City. ***

SMALL CAR POSSIBILITIES

"Grown-up" Runabouts Leaving a Void to be Filled—What May Fill it.

In the design and construction of the motor car, the whole trend is toward greater luxury and comfort for the passenger, and greater carrying capacity. The only possible exception to this is to be seen in the now popular type of heavy runabout, which, indeed, fulfills the conditions of the first two clauses to the letter, if not that of the third. This trend is constantly being made manifest even in the lighter and cheaper grades of car, so that as time goes on that type of simple runabout—the idealic "poor man's" car—is growing less possible. And this, despite the fact which cannot be gainsaid, that the average cost of cars is becoming lower every year. For with the increase in the number of parts involved in the use of multiple engines, sliding gear transmissions giving three and four speeds, and the other details which are involved in the touring class of vehicles, the cost of manufacture governing the selling price cannot be decreased materially beyond a certain point.

Thus while the light runabout is constantly growing more complete in every detail, and more like the heavier machine, more elaborate, more capacious, and more complicated, by the same token, the gap in the line of self-propelled vehicles which always has existed between the types of light car and the simplest form of motor bicycle, is growing wider rather than narrower. It is this field in which the poor man who has a definite need of an auto-propelled vehicle expects to find his own machine. It is here that the man of moderate means expects to find a machine which will give him all the pleasures of motoring without its expense, and all the joys and independence of cycling without its attendant drawback of physical labor. And it is here that the manufacturer of rapid and cheap productive ability, will find an opportunity for the amassing of the gigantic returns which ultimately will be granted to but a minor portion of the members of the industry.

On the other hand, there is coming more and more into prominence, more especially on the other side of the water, a type, which whether it assumes the form of the tri-car, the fore-car or the quad—a name, which, by the way, is not now fashionable—is constituted more essentially for the use of the man of limited means and modest requirements. Unlike the runabout of common usage, which is nothing more or less than an offshoot of the full grown car, cut down and fashioned to a lower and cheaper scale, and which, frequently enough, is merely a bi-product of a firm whose piece de resistance is far more pretentious and formidable, this class of vehicle is a direct and legitimate descendant of the bicycle. It

Testing his Car in the Snow.



I. T. RANIER, PRESIDENT RANIER CO., IN A RANIER CAR, OF COURSE.

embodies all the points of excellence of that machine, possesses all its saving grace of lightness and simplicity, utilizes all the lessons of construction which were learned in the later years of the bicycles' popularity, and is above all other things, cheap to build.

The tri-car principle, whether taking shape as a fore-car or side-car attachments to the motor bicycle, or as a distinct and complete machine, has all the drawbacks of the three-wheeled vehicle which has never found favor in this country. The four-wheeler of the same class is hardly better off at the present time, the one time popular type of quad, having rattled and jolted its way out of favor several years since, and the voiturette, by far the most promising embryo ever hatched, having been nosed out by other and more pretentious successors. Nevertheless, somewhere within the range of the two types, lies a region of unfathomed possibility for the present day constructor, in which there is more of promise insofar as actual commercial results from the salesman's point of view are concerned, than lie almost anywhere else in the entire outlook of the industry, barring only the branch of commercial machines. The development of such a type of machine involves a deal of effort which will be unrepaid for some little time, also it involves the outlay of so great an amount of capital that none but the most solidly grounded interests had best undertake its introduction. But for such as have the temerity to undertake it, and for such of them as have the ability to carry the thing through to the end, there is a reward which is far too important to be overlooked even now.

Purdue will now Test Ignition.

Having completed the installation of its automobile testing plant and put it to work, Purdue University is about to undertake another branch of investigation in connection with the car, which should be productive of even greater practical results. There has long been a real need of some experimental knowledge of the requirements for igniting the fuel in the cylinder of the internal combustion engine, and by no one has the lack of it been felt more keenly than the manufacturers. In consequence, two series of investigations will be undertaken at Purdue, both of which will be in charge of Prof. J. W. Esterline, of the department of electrical engineering.

The first will comprise a comprehensive study of the various forms and makes of ignition apparatus now on the market, such as high and low tension magneto systems, spark-plugs, coils, batteries and the like. In conjunction with this, there will be carried on an investigation comprising a series of tests to determine the limitations of, and, if possible, the ideal conditions for the ignition of gasoline. Variations of capacity, inductance, current, potential, compression and quality of the mixture will be made, and the effect of these variables studied. If possible, a comparison will be made with the ideal conditions in order to demonstrate clearly in what elements the shortcomings of present systems are centered. The co-operation of makers of engines and ignition apparatus would result in making such a series of experiments productive of valuable data to the trade generally as well as to the mechanically minded car owner.

62 MILES ON TWO GALLONS

Remarkable Performance Stirs Europe and Leads to Some Spirited Discussion.

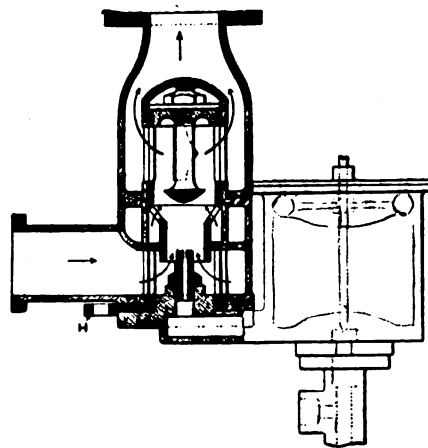
Sixty-two miles at an average speed of 46 miles an hour on two gallons of gasoline, is the extraordinary performance of a regular 16-22 horsepower Berliet car that is setting French makers by the ears, and despite the fact that though the trial was unofficial, it was witnessed by several authorities, there is a tendency to discredit it in some quarters. This consumption test was carried out on the road between Salon and Arles, during the first week in February, and the car used was not only a standard stock car in every respect, but was brand new and was not in any way specially prepared for the trial. Without fuel its weight was about 2,350 pounds and with full equipment and three passengers it scaled close to a ton and a half.

Probably much is due to the fact that the car was driven by an expert from the Berliet factory, M. Bablot, who has the reputation of being able to get more out of the engine than almost any other man in France. A marked course of 15.42 miles was covered four times at an average speed of 45.95 miles an hour, the time being checked by the official timer of the Automobile Club of France. The consumption for the total distance of 62.1 miles was 15.84 pints of gasoline, or approximately one half of what might be expected under such conditions. The performance has been sworn to by Fernand Bettin, president of the Automobile Club of Salon, Paul Barlatier, of the Marseilles club, Jean Hunzecker, official timekeeper of the French club, Marius Masse, a dealer, and J. Panthe, the official watchmaker of the Automobile Club of France.

But despite this volume of evidence there is one doubter who refuses to be convinced and thinks some mistake is responsible for the most unusual showing made. He is Baudry de Saunier and requested the opinion of the Technical Committee of the French club, which went against him with but one dissenter out of four, but still he is skeptical. It was further suggested by the president of the Automobile Club of Cannes, that the consumption test should have been by weight instead of by volume, as the Berliet tank, "being behind its contents," must have become heated by the exhaust, and gasoline has a considerable expansion coefficient. Query: When is a tank behind its contents? If the expansion coefficient of gasoline were in reality such a powerful factor as to cut fuel consumption in half even under adverse circumstances, it would pay to build tanks that were always "behind their contents" and which were warmed by the exhaust.

In connection with this performance it is interesting to note that the Berliet carburetter, which must naturally be accorded

a very large share of the credit, does not differ radically from other types. As will be noted from the sectional elevation of it shown by the accompanying sketch, it embodies all the features sanctioned by current practise and they are moreover combined in what has generally come to be recognized by designers, as the form best adapted to give a high degree of efficiency. The usual float feed chamber is in evidence at the right, communicating with the spray nozzle, centered at the bottom of the body of the carburetter, the gasoline impinging against a corrugated cone extending downward in the centre of the mixing chamber. At the left and on the level with the spray nozzle, is the main air intake, the direction of the suction being indicated by the long arrows. Just above these are the auxiliary



air intakes indicated by the small arrows and which are set at an angle facing the sides of the cone. Surrounding these auxiliary air intakes is a warm air jacket. The further course of the mixture is indicated by the large arrows, the amount passing being controlled by the rotary throttle forming the upper part of the mixing chamber. This is operated by hand from the wheel, as usual, through the medium of the small lever H shown at the lower left hand corner.

In commenting upon the excellence of the performance of the Berliet car, the Autocar remarks that in any such test, the driver is the main factor, and, given a well designed and efficient engine and carburetter, it must be conceded that this is so. Those familiar with cars and consumption tests are only too well aware of what the expert driver can do in the way of keeping the fuel consumption of his engine down. His resources are inexhaustible. He keeps his engine running at the most economical speed, which is invariably below the normal; he places the tank or carburetter and adjusts the feed pipe so that the temperature is sufficiently raised to admit a small weight of gas under a large volume, and he has many tricks for getting the most out of the engine with the least quantity of gasoline which would astonish the novice whose knowledge of driving is limited to handling the throttle and ignition levers.

This kind of driving is so far abnormal that consumption tests are and always will be misleading. Since the results are bound to be so very much better than can be obtained under ordinary service conditions. Even in the case of stationary engines, where the test consumption is practically the same as that secured in ordinary practise, the wiles of the expert make themselves felt. But the automobile motor is capable of such extremely wide variation that consumption tests, to be at all practical, must be carried out with cars driven by motorists and not by expert mechanics. Again, the devices resorted to in consumption tests are so varied and difficult to understand that even when carried out with every possible precaution under the supervision of men who think that they have got to the bottom of even the most resourceful driver's expedients, it sometimes happens that the results obtained are so extraordinary even in the face of these excessive precautions, that the judges are apt to look askance at the results and think there is something they cannot fathom. If the judges are never sure of the results, how can the consumption tests be of any value?

An instance illustrative of the foregoing happened at an official consumption test in England two or three years ago. One of the cars scored with such an extraordinarily low fuel consumption that its performance could not be made to conform consistently with that of the other entrants and was accordingly an object of suspicion on the part of the judges. The tank and fittings were all examined with painstaking care and as everything stood inspection, the car was tested again with the same result. It was then ascertained that a small quantity of picric acid had been added to the gasoline, and for a time following that there was a boom in picric acid until it was pointed out by an eminent chemist that with the use of this ingredient there was considerable danger of the motorist leaving his car and soaring aloft at record speed. In view of such results at official trials where everything is kept closely under supervision, it is hardly to be wondered at that a certain amount of skepticism should prevail when extraordinary results are the outcome at unofficial trials.

French Investigator here to "See Things."

More evidence is forthcoming that France has her eye peeled on the American automobile manufacturer. In addition to establishing a sort of automobile consulate under the management of Georges DuPuy, she is now sending Count Henri de la Valette, an expert of the Paris Tribunal of Commerce and a member of the Automobile Club of France, to this country to report on the progress of the industry here. The first thing he did on arriving at New York was to visit some of the garages and their size took him by surprise. Before returning he will visit all the principal factories.

Trafford's Ingenious Speed Indicator.

It is suggested that the speedometers instead of being graduated in miles should be marked "Fine, imprisonment, manslaughter" in succession, but there appears to be no ardent desire to adopt his suggestion. Instead, it would seem as if the audible signal attachment to the speedometer to warn the driver when he is exceeding the legal limit, without the necessity of keeping his eye glued on the dial continually, were about due for a siege of popularity as two of this type have made their appearance simultaneously, one on each side of the Atlantic.

A New Yorker, Wesley Trafford, is responsible for the American invention which incorporates a number of novel features in addition to its electric alarm. In fact, the entire operation of the instrument is electrical instead of mechanical, as is the case with the great majority of other types in use. The instrument is about four inches in diameter, is mounted on the dashboard as usual and is connected with a contact make and break on the hub of one of the front wheels, through a flexible cable, the usual shaft being eliminated. Two independent rows of figures are on the dial, the inside one divided into sixty equal parts representing the number of miles per hour, and the outside one the number of minutes to the mile.

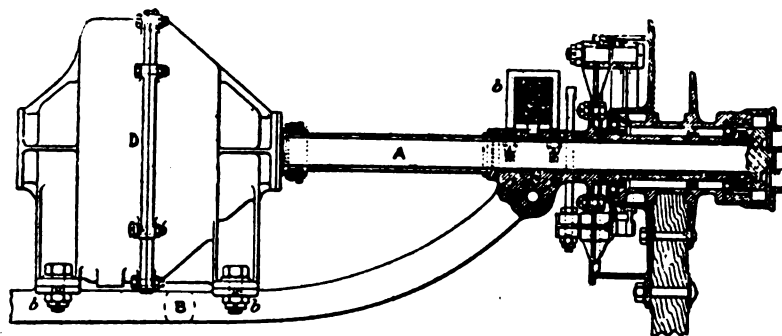
There are two pointers moving across the dial. In the electric circuit between the instrument and the breaker on the wheel hub, there is a clock. The contact maker comes into action every one-sixtieth of a mile. This moves the indicator on the dial one point ahead. As both the clock and the dial face of the speedometer are divided into sixty equal parts, one movement per minute of the indicator hand means a speed of one mile per hour and so on up to the varying speeds. At the end of each minute the clock throws the pointer back to zero, and the speed at the end of the previous minute is indicated by the second pointer, which is pushed ahead and remains stationary when the first hand returns to zero. This second pointer constantly indicates the extreme speed reached, and by pressing a button, either or both pointers may be returned to zero. The second pointer may also be set at any desired speed, and when the first overtakes it, an electric bell or buzzer comes into action, warning the driver that the speed limit set has been reached or exceeded.

Mirrors for use in Traffic.

Drivers who are obliged to run through heavy traffic to any extent find it of considerable advantage to affix a small bit of mirror plate to the right stanchion of the canopy just above the dash so that the following traffic may be observed without turning the head. Such a device may be very simply and easily contrived, and serves to relieve the driver of considerable anxiety and twisting about in his seat when work through closely crowded streets.

Departure in Rear Axles.

Rear axle construction is still a point upon which numerous designers hold radically differing opinions. Taken in the aggregate these may be simmered down to two or three standard types at most, but those that find themselves outside of this pale are naturally of greater interest. One of these that made its debut at this year's Paris Salon was a feature of the Aries car

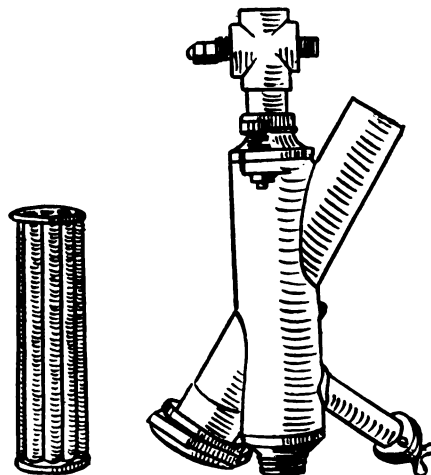


and while following lines that have been adopted in isolated instances previously, embodies points that makes it of interest.

As will be plain from the sketch illustrating half of it together with the differential and one driving wheel hub, the manner of supporting the weight is radically different from usually accepted forms. The differential itself is placed on a drop axle, while the driving axles extending from each side of the differential run through bearings (C) at the outside end of the supporting axle (B) and on which the road wheels are mounted on balls. The driving axles themselves are of the floating type, the drive to the wheels being through a star dog clutch on the end of the shaft (A). This, of course, is but another means of relieving the differential shafts of the weight of the car.

Carburetter for Kerosene or Alcohol.

Despite the great amount of attention and research that have been lavished on



the elaboration of a carburetter to handle kerosene, the simple type of vaporizer used in connection with the exhaust does daily service to the number of thousands and for

both simplicity and economy is hard to surpass. It has the defect common to all apparatus of the kind—the necessity for a preliminary heating before it is possible to start, but the same is true of even the most elaborate type devised.

The builders of the Ivel agricultural motors have recently brought out a kerosene vaporizer for use in connection with their motors and it may be said to be typi-

cal of its kind. As will be apparent from the appended illustration, the intake of the cylinder is through the staggered tube AB, while the exhaust of the motor is led through the apparatus by way of the CD. What corresponds to the heater—a part of the vaporizer that assumes differing forms with each new design, takes the form of a nest of tubes in this instance, and is shown at the left. The opening F is for the reception of the flame of a gasolene torch to heat for starting. The end A of the intake pipe is connected up immediately above an ordinary spray carburetter.

As the kerosene is drawn up by the induction of the motor it must pass along the nest of tubes shown. There are a number of the latter closely placed together and they exert a baffling action on the spray and thus assist in vaporizing it. Once the engine is under way the exhaust maintains this heater at the proper temperature. The device is also efficient with alcohol.

Where Nickel Comes From.

Nearly all the nickel used in the United States is obtained from Canada, with a small quantity from New Caledonia. For this reason the production of nickel ore in Canada is of especial interest to the users of this metal in the United States. In 1903 the nickel output aggregated 12,505,510 pounds. In 1904, however, there was a falling off of approximately 2,000,000 pounds, as compared with the nickel content of the matte in 1903. A better quality of matte, containing a much larger percentage of nickel, has been obtained during the last few years.

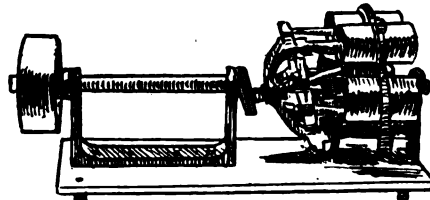
Silence is golden with practically every part of the mechanism of a car, and the same truism applies to the acetylene gas lamps which should burn without making any fuss. A burner that hisses is wasting gas and is apt to give a reduced light and more or less smoke in consequence.

SIX CYLINDERS; ONE CRANK

Remarkable Specimen of Ingenuity—How it Operates—Other Novel Features.

Apparently there is no limit to the strikingly original forms that may be given the internal combustion motor. So many odd ways have been devised in the past of utilizing the explosive action of a hydrocarbon and air mixture as a prime mover that it would seem that the possible range of novelty in this direction must have been exhausted long since. That such is not the case is evident by the recent appearance of a six-cylinder horizontal motor with but a single crank. During the past two years, almost a baker's dozen of very novel forms

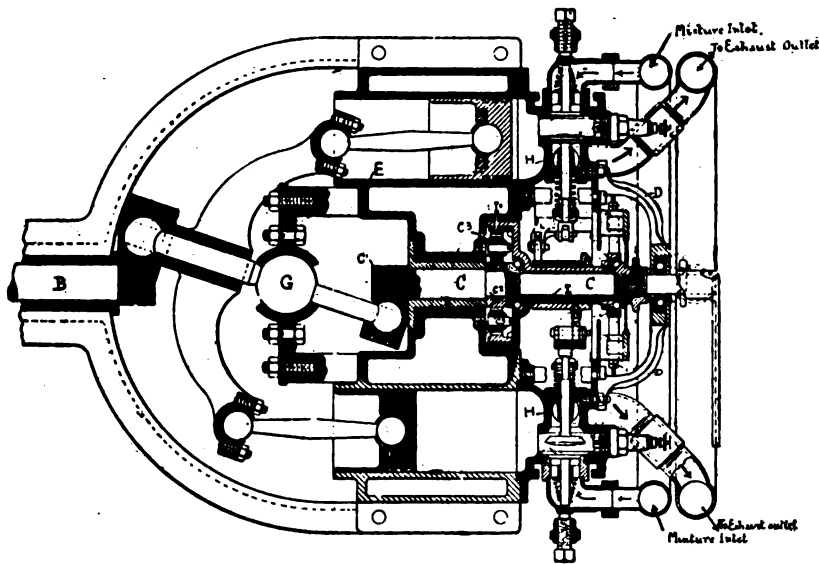
socket joint at both this and their outer ends. In all there are no less than fifteen of these joints in the engine—they may, in fact, be said to be its distinguishing feature



SHOWING THE SINGLE CRANK.

and one of the things that makes such a design possible.

Each of these connecting rods is attached at its outer end to the end of one of the arms of a six-armed spider, accommodating

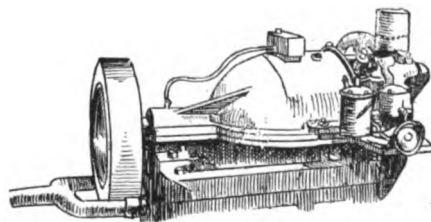


LEGE'S UNIQUE SIX CYLINDER MOTOR.

of motors have been brought forth from the inner depths of the ingenuity of German and French inventors and strange to relate, the greater part of them have been entirely feasible though not altogether practical in many instances, but it has remained for an Englishman, A. J. Lege, to create a type that is more than any of its predecessors of the field of radical departures, in a class of its own.

As already stated, the Lege motor has six cylinders, the reciprocating motion of which is transformed into a rotary movement through the medium of a single crank. It is difficult to conceive at first sight just how this is to be accomplished, although it takes but a glance at the horizontal section illustrated here to make it plain. The cylinders are all horizontal, but they are ranged about a circle at equal intervals with their open ends all pointing in the same direction. So far as their construction is concerned, these cylinders and their pistons are of the standard type, but this can hardly be said of any other feature of the engine. For instance, the connecting rods instead of being attached to the piston by the usual wrist pin, terminate in a ball and

the socket portion of the joint. This spider or radial frame is hung on a shaft suspended at a point considerably to one side of its center on the large ball and socket joint G. At its outer end it terminates in another joint of the same character in the single driving crank of the motor which is



EXTERNAL VIEW.

integral with its main shaft B carrying the flywheel as shown in the second illustration. The short side of the shaft carrying the radial frame terminates in the same manner in a small crank actuating the single cam shaft C. The ignition gear and the exhaust valves are operated by this shaft, the inlet valves being of the atmospheric type. In action the reciprocating movements of the pistons impart to this spider

to which they are all attached, a dishing motion, which in turn communicates a turning movement to the cranks placed on offset bearings at each end of the shaft to which they are attached and which also carries the spider. The latter is prevented from revolving with the cranks to the detriment of the connecting rods by means of a supplemental arm working back and forth in unison with the dishing or oscillatory motion of the frame, in a slot cut in the main casing of the engine which completely encloses all of its parts.

The motor is of the four-cycle type, the explosions taking place in alternate cylinders, so that there are three turning impulses during every revolution of the main shaft. So far so good, while totally out of the ordinary and at the same time constituting a feature which required the utmost precision in design and execution, the details of the drive are simple and readily understood, but it will be apparent that the task of figuring out the valve and ignition gear operating mechanism as well as the placing of the valves and their connections must have been one that called for an unusual amount of ingenuity and mechanical skill. Interest naturally centers in this portion of the engine. The cam-shaft C rests on a long bearing centered in the circular space formed by the six cylinders and is further supported by two sets of ball bearings one of which is placed on an outward bearing frame D which is a spider bolted rigidly to the frame of the motor itself, as will be plain. Near its center the cam shaft carries a pinion C2 meshing with intermediate pinions C3, mounted upon studs fixed in the casing. These intermediate pinions in turn engage an internally toothed wheel I, formed integrally with a sleeve which has its direction of rotation reversed and a reduced speed ratio of two to one. Formed on this sleeve are cams R, which are so arranged to come in contact with rollers carried on the suitably forked or staggered ends of the spring closed exhaust valves H, and to open them in the proper order. The six exhaust outlets terminate in a circular tube surrounding the end of the motor from which they are led off to the muffler. A similar circle of tubing concentric to the former conducts the mixture through appropriately placed branches to each of the inlet valves which are set directly over the exhausts. The end of the exhaust outlet will be noticed in the form of a yoke emerging from each side of the flywheel beyond which they come together and extend to the muffler.

Novel constructional features are not confined to the engine alone, but extend to its accessories as well. The carburetter is fitted with an automatic air inlet, in which the suction of the engine acts on a drum. The vacuum created causes the drum to move downward opening auxiliary air inlets through holes pierced in the drum itself. This, of course, is a matter that has become familiar through current practise in the past two years, but the action of the drum

or piston is usually spring controlled. In this instance, through the medium of a vertical rod and rocker arm, the drum is connected to an air dash-pot, against the retarding action of which the suction of the engine must work, an arrangement that is said to result in delicately balancing the air intake. The timing of the ignition is accomplished in the usual manner through the medium of a distributor affixed to the sleeve I on the cam shaft C already referred to. The contact blades are carried on insulated holders mounted on an insulating support also carried by the cam shaft.

A combined pump performs the functions of lubricating the various bearings as well as keeping the cooling water in circulation. It is an ingenious combination of a plunger pump for the oil and one of the rotary type for the water, both mounted on the same base and driven by the same chain and sprocket. The shaft carrying the sprocket works the rotary pump direct and carries a pinion on its outer end meshing with a gear bearing an eccentric to which the plunger of the oil pump is attached.

The entire engine is encased so that a view of it from the outside such as that shown conveys but a scant idea of the novelty of its internal arrangements. In addition to the illustrations showing a perspective and a horizontal section, a sketch of the preliminary model made by its builder is shown and from this the action of the pistons and their connecting rods on the oscillating spider and the single crank will be clear at a glance. While the practical value of such a motor is doubtful, to say the least, its successful designing and execution calls for a knowledge of mechanical principles and a degree of skill in their application to the concrete that cannot fail to elicit the admiration of those familiar with the difficulties encountered in the construction of such a motor.

Air Resistance Counterbalances Weight.

A. G. New, the honorary technical expert of the Automobile Club of Great Britain, recently lectured the members of that club on the Tourist trophy race and its lessons. The lecture was a practical one, and perhaps the most notable pronouncement in it was the calculation which Mr. New gave that the winning car in this race, if it was required to travel 114 miles an hour, would require engine power equal to 234 horsepower. At 71 miles an hour it would require to develop 57 horsepower; at 50 miles an hour, 20 horsepower; at 32 miles an hour, 5.2 horsepower, and 21 miles an hour, only $1\frac{1}{2}$ horsepower to overcome wind resistance alone.

Put more graphically, the lecturer stated that if the car was driven over a precipice it could only fall at the rate of 200 miles per hour, because at that pace the air resistance would exactly counterbalance its weight. Anybody who is desirous of a quiet death will take note of this.

ABOUT PAINTS AND PAINTING

Some Suggestions that Make for Convenience and Good and Economical Results.

Care and neatness are as essential in the paintshop as in other departments and the workman who is systematic as regards the little things, will in nine cases out of ten turn out a much better job than the man whose only thought consists in getting out a job in the shortest possible time. This latter is never careful about his brushes and neatness is not in his vocabulary. The following paint-shop jottings from the Carriage Monthly are of interest to the man who particularizes upon neatness and economy in the shop:

"In suspending bristle paint brushes in water, hang them so that the binding holds clear above the water, otherwise such parts will soon swell and burst the binding.

"Glue-bound brushes should never be kept in water, nor should brushes bound in shellac be suspended in turpentine. Either method of treatment will destroy the working property of the brush.

"Why daub the walls of the paint shop in every vicinity of the mixing bench with every smear of pigment imaginable? Better by far locate a good width of board in close proximity to the aforesaid bench, and upon this space wipe out the brushes.

"There are times in the life of every finisher when it just naturally seems the most advisable thing to do to mix the varnish. Generally speaking, varnish mixing is a bad practice—and more often than not disastrous. In mixing two different grades of varnish, pour into a can and shake vigorously; then set aside for two or three days until the contents of the can have assimilated.

"To clean off the varnish brush which, through accident, has fallen to the floor, or in some other way becomes stricken with dirt, first wipe out the varnish, and then putting the brush away fill it full of varnish. This, in due time, will cause the dirt to settle to the bottom, eliminating it from the brush.

"Boiled oil is unsuited to carriage painting, because, first and foremost, it dries from the outside and not through and through. It yields a treacherous surface to paint over, which makes further comment unnecessary.

"'Never putty on the priming' is good advice, and for this reason: The priming coat lacks body and that strength of pigment required to hold the putty secure in position.

"Accurate advice from an old-time painter: 'Never putty a crack or cranny or a joint between two pieces of wood that are subject to diverse forms of resistance. An unfortunate twist or wrench of the vehicle will dislodge the putty.'

"A note to the color mixer: Tone, as applied to a color, measures the depth of

the hue of that color. The primary colors have no established hues, tints, or shades, but in every compound of the primaries a hue is recognizable. To illustrate: Green, a compound of blue and yellow is made to vary wonderfully as the proportion of one primary is increased over that of the other.

"The greens, the popularity of which continues like the life of the fabled brook and promises to go on forever, consists of two orders—cold and warm. Blue or black predominates in the cold greens and yellow in the warm greens.

"Van Dyke brown has recently come into renewed prominence as a panel color for certain light business vehicles. Genuine Van Dyke brown—the natural deposits of brown pigment—is a warm color with a pronounced reddish hue and possessed of plenty of durability.

"Some beautiful yellow striping colors: Primrose and canary yellow, straw and cream color. Upon dark green and blue surface they afford charming effects.

"Fine, distinct grays for business vehicle panels: Light, medium, normal, pearl and French gray, the latter made of white, darkened with ivory black, and given a touch of warmth with a dash of vermillion.

"The very richest and distinctive blue effect is obtained by a very dark green ground being glazed with ultramarine blue.

"The umbers are, after all, useful pigments, and burnt umber, done to the proper turn, furnishes a beautiful dark brown, now often seen upon city business wagon panels. Burnt umber should, of course, have a very strong ground color owing to its lack of opacity. Make the ground color of Indian red, lamp black and a dash of chrome yellow. Then to heighten the brilliancy of the umber use it as a color-and-varnish coat.

"Does your paint or color curdle and give you much bother at times? If so, look to the quality of your japan supply. An inferior japan will cheapen the quality of any pigment to which it is added, in addition to curdling it. Mix japan, for test, with raw linseed oil. If the two assimilate, trust the japan. If the contrary condition ensues, mistrust it."

Gasolene and Stove Gasolene.

Slight differences in the specific gravity of the gasolene obtained for fuel will not make an appreciable difference in the running of the car, but if stove gasolene be supplied by mistake it is apt to cause the carburetter to work erratically, and the latter will, in the majority of instances, be attributed to almost everything but the real reason. Stove gasolene is of comparatively low test, about 60° and is nothing as "lively" as the higher test fuel. An experienced nose may readily detect the difference in that stove gasolene savors very strongly of kerosene, while the odor of gasolene of 80° or higher specific gravity, is indescribable. A hydrometer is, of course, the only accurate means of learning this characteristic of the fuel to a certainty.

THE MAN WITH THE SKATE ON

Just how he Looks and how he Controls Things—Some Questions that Arise.

Ever since it was made plain that the motor skate was not a new brand of automobile jag, nor yet an idle dream, but instead a roaring reality, and that Hiawatha's wonderful moccasins with their magic mile-a-minute gait, and even the winged feet of Mercury himself were to be outsped by the modern motorist, mounted on his gasoline castors, interest in the invention has been rife. Also the imp of the perverse has been bust stimulating reportorial genius as displayed in the columns of daily newspapers until both the skates and their rider or user or chauffeur or operator or pedestrian, or whatever he may properly be termed, have been invested with most marvelous propensities.

Usually, according to report, the skates are driven by electric power, the supply of which is derived from a battery strapped to the waist of the user. Somewhat less frequently, steam is said to be the motive power, and the alleged disposition of the essential parts of the necessary apparatus are as varied as they are amusing. Occasionally, the right answer is guessed, and the propulsive function truthfully attributed to the gasoline motor. Even then, however, the details are apt to be rather meagre and unsatisfactory, some even maintaining that the power plant is carried strapped to the body of the user while the principle of the shaft drive is utilized in distributing the power to the driving trucks.

All doubts in this regard are quite dispelled by a glance at the two illustrations herewith presented, which reveal beyond question the fact that a tiny motor is placed beneath each foot plate, its fuel tank being located directly behind it, and the ignition batteries and coils carried by the rider strapped to his waist. Of course, it is to be presumed that the equipment as shown is not such as would be used in regular service, as when taking an afternoon skate in the park, for instance, or running down town to business in the morning. Ordinarily, the batteries would in all likelihood be carried in the pocket, the wires being led up through each trousers leg, and the current switched on and off by turning a false button in the waistcoat.

There are several questions which arise in connection with the proposed universal use of these contrivances, and unless due provision has been made to guard against possible contingencies, embarrassing consequences might arise under certain circumstances. Apparently the worthy inventor himself is of the same opinion also, for as shown in the second of the two pictures, he is apparently trying to decide



SHOWING METHOD OF CONTROL.

what would happen if one motor became reversed when the other was pegging away at the rate of "twenty an hour."



HOW THE BATTERIES ARE CARRIED.

URGES THEM TO COMBINE

American Consul Says it's the Best Way for Makers to Gain Foreign Trade.

United States Consul Dunning writing from Milan, renews the suggestion which has been made already many times, that the most effective method of building up foreign trade is for American manufacturers and merchants to combine in opening general agencies in all the larger foreign cities. By way of illustration, he refers to a somewhat similar plan which has recently been brought before the chamber of commerce at Brescia, where the Italian export problem is being studied with great care, and not a little success. The Brescian Chamber has come to the conclusion that the principle of association is necessary, not in the way of creating syndicates or trusts, but rather in the way of constituting groups of interests in which single associations undertake what could not be accomplished by individuals working singly.

"The report from Brescia argues, as the consulate has already argued for American exporters," says the Consul, "that where a single firm could not appropriate the large sum necessary to maintain an agent and an office in the important foreign trade centers, ten firms in combination could secure special and expert representation with all its advantages and at a reasonable cost. Groups typical of Italian export trade mentioned in the report are firms dealing in preserved fruits, cotton, textiles, butter and cheese, flax and linen, wool, silk, agricultural machines, electrical supplies and machines, bicycles and automobiles, porcelain articles, and furniture. This partial list seems to me to be closely related to our own American export efforts. A central office would be established at each great market, supported by an equal division of the expenses among the subscribing units. The whole plan is to be placed before the chamber at Brescia, when it has been thoroughly worked out, with the suggestion that it be initiated at the earliest practicable moment.

"The group system of foreign representation unquestionably is suited to the larger number of our exporters. In some cases, of course, the American house can afford to set up its own establishment. There are a number of these in Milan, managed by Italians or Englishmen, and they are among the finest business exhibits of this great city. Every one is on a prominent street with a complete office equipment and a handsome showroom. They are distinctively American in style and attract much notice. There has just been established here what we would term a "model grocery," over which has been painted as the background of a sign, a large Ameri-

can flag. Yet there is not on sale within the shop a single American article, excepting a small line of Chicago canned meats.

"The latest special agency to be opened here handles the product of a large manufacturing firm in the Middle States. The show is not large, but cleverly arranged. It is a corner store, in a handsome new building, and 50 feet long. Along one-third of the rear wall is the inclosed counting-room, the rest being occupied with blue-prints and drawings of the stock machinery. The other two sides are glass windows as large as those of a Yankee department store. There is a polished hard wood floor, on which are the large machines, with their polished steel set off with jet black, making a striking effect. Crowds of people stand in front of the windows with absorbed interest, and the whole plan seems to be a successful realization of what we, who are on the ground floor, know to be the value of an appeal to the eye in a country like this. Hardheaded American business men, who do not believe the consul when he writes about such things, would be interested to see what has been done in this case with a colorless and unornamental line of stock. This agency is handled by an Italian expert, who very probably buys his stock outright under special terms. In general, the main thing is to get the American article on view here and let it tell its story."

About "Digging into" Things.

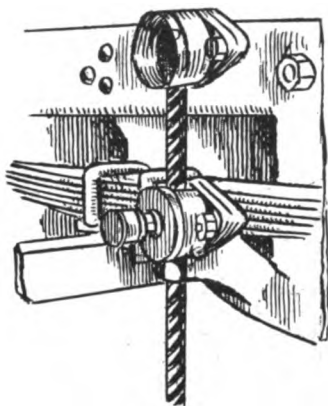
A good many surprises await the man who occasionally digs in to the bottom of things, whether it is the scrap iron pile, the bin of odds and ends, or the affairs of his own office, but for the man who prefers a prosperous business to surprises the habit of digging to the bottom as he goes along is far ahead of spasmodic enterprise in that direction, remarks a contemporary. Too often we consider only the surface of matters of seemingly secondary importance without going into the real depth of them and finding out their possible importance. Even though they are somewhat secondary in their own nature, a business is really made up of so many secondary details that not to know more than the surface of them is to have but a superficial knowledge of the whole business.

Get at the under side of things as they come along; don't stop at the surface. Know more about your books than the footings. Dig in and see whether the showing is properly obtained or if there is a dangerous undercurrent. Don't be satisfied with general reports of salesmen; dig in and find out the true facts. The fact that a certain line of goods is not selling may not mean that it is unsalable. Find out why it does not sell; if because there really is no place for it or because people do not understand its value and haven't had a chance to find out. Accepting reports is only surface knowledge; the real vital facts, the why of your entire business lies below the surface. Dig in and get it.

INCREASING THE COMFORT

Some of the More Recent Foreign Devices that Seek to Eliminate Jars and Jolts.

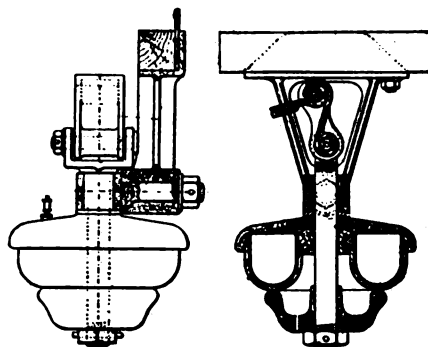
Despite the fact that American roads are of a nature that would apparently require the fitting of shock absorbers to a far greater extent than abroad, it is noticeable that the foreign shows were productive of more devices of this kind than made their appearance here. It is not very long ago



EDO ANTI-SHOCK DEVICE.

that the Truffault device had the field all to itself on the other side, but there are now a dozen or more, of radically differing types in many instances, but all with the same object in view. One of these that bears not the slightest resemblance to any of its predecessors or contemporaries, is the Edo.

As shown by the accompanying sketch, it consists of an Archimedian screw supported in a bracket on the frame and arranged to



"BP" SHOCK ABSORBER.

rise and fall in a similar bracket on the axle the construction being such that the screw can only return slowly, thus preventing any plunging action or sudden rebound of the springs on rough roads. It was further noticeable that quite a few makers added helical springs as auxiliaries, these being made fast to the rear axle and the under side of the body. There were one or two instances of this in evidence here but hardly sufficient to be called anything more than exceptions.

Rather a novel addition to the ranks is termed the "BP" amortisseur or shock damper, from the initials of its designers. It is fitted in connection with the spring

shackles, a short rod projecting downward from the latter and terminating in a cap, the periphery of which presses against a small air tube held between it and an upper cap. The details of the device will be clear from a reference to the sketch showing an elevation and a section. As will be seen, the end of the shackle is connected to this rod which is virtually a plunger carrying the upper cap with its circular air chamber. Every movement of the spring tends to force this plunger downward thus pressing the air chamber against the fixed lower cap which naturally tends to set up compression in the contained air.

Another device termed the "Rep," consists of the principle of the multiple disc friction clutch. As a matter of fact, it is practically a small metal disc clutch, the plates of which are arranged alternately, as to one-half in a case attached to the frame, and as to the other, on a spindle which turns in proportion to the movement of an arm to which it is connected, and which in turn is connected to the center of the spring. The Sans is also of the friction type, consisting of two arms, one of which is attached to the frame and the other to the center of the spring, as usual, the joint between the two being provided with a miniature brake drum. That is, one of the arms constitutes the drum while the other supplies the brake band and any motion of the car on the springs causes the band to constrict upon its drum.

Quite the most radical of all is the product of M. R. Taverne, who does away with the springs altogether as proposed by an American engineer, and substitutes compressed air, but whose system has not as yet seen the light. Both are in fact identical. In place of the springs, cylinders and plungers are employed, the latter being fast to the axles and the former to the frame. Any movement between the two tends to compress the air in the cylinder.

What Smoke Usually Indicates.

Black smoke issuing from the muffler pipe may be taken as an indication that much too rich a mixture is being fed to the motor. Similarly, blue smoke indicates an overplus of lubricating oil, and white smoke occurs usually only when kerosene is being used, either in excess in the mixture of a kerosene burning motor, or for the purpose of cleaning the cylinders of a gasoline machine. The presence of steam in the exhaust in any amount may be caused by the presence of water in the crank case, but when accompanied by a great deal of missing in one or more of the cylinders, and denoted by a churning sound, it may be taken as a certain indication of a cracked cylinder which is being flooded with water from the jackets.

"The A. B. C. of Electricity" will aid you in understanding many things about motors that may now seem hard of understanding. Price, 50c. The Motor World Publishing Co., 154 Nassau Street, New York City. ***

FOR ALASKAN SERVICE

Novel Steam Vehicle Designed to Replace Dog Teams in Ice Bound Country.

The development of the steamship, the locomotive and the automobile, and the still later conception of the dirigible airship, would seem to have exhausted the field of novel means of transportation, says the Scientific American. Yet a machine which is in its basic principles a decided innovation, has been designed and constructed by a Minneapolis man, Charles E. F. Burch, who has experimented for years in practical demonstration of his ideas. One of the machines in question is now resting on the ice of Lake Calhoun, where it has been tested, for it must be understood the machine is intended to travel on a frozen surface. The object which the inventor has in view is the revolutionizing of the means of winter transportation in Alaska, where he is heavily interested in mining properties difficult of development owing to their inaccessibility. At present in certain parts of Alaska, freight transportation during the winter is accomplished entirely by dog teams and sleds and in consequence the charges are from \$100 to \$1,000 per ton. It is the inventor's plan to use in the place of dog teams, his ice locomotive, drawing its train of sleds, and in this way to reduce the expenses of freighting to the minimum. It is hoped that the invention will prove a boon to winter commerce in Alaska, and should it succeed will doubtless be received with enthusiasm by thousands in that frozen country, who in winter are practically shut out from the civilized world.

The ice locomotive is propelled by steam engines, but instead of resting on wheels or runners is supported by four great steel spirals, one at each corner of the body in the place usually occupied by the wheels or runners of ordinary vehicles. The spirals lie with their vertical axes horizontal and are of opposite pitch. The edges of the blades are fashioned like steel skate blades in order that they may grip the ice well; each of the spirals is directly connected to a separate steam engine and in consequence the spirals may be operated independently, this method giving unusual control over the car. It can be driven forward, backward, sideways or at any oblique angle desired and it can even be made to spin around like a top. The model now at Lake Calhoun is 22 feet long, weighs 4½ tons and has engines of 42 horsepower and steel screws 27 inches in diameter. It is easily seen that the greater the diameter of the spirals, the greater will be the ability of the ice locomotive to travel over rough surfaces and to surmount obstacles. Accordingly a machine which the inventor is having built in Canada to protect patent rights in that country, will have spirals six feet in height. The ice locomotive is steered by means of two semi-circular steel discs, at

each corner of the body, operated by compressed air. The discs work in unison and are weighted in order to better grip the ice. The bottom of the body is made water tight so that in the event of the machine breaking through the ice it will float on the surface of the water. In that case, it would be possible to easily propel the machine, for the spiral method of navigation as is well known, operates successfully.

The Lake Calhoun machine, which is unfinished and rough in appearance, was constructed to make an estimated speed of nine miles an hour, but on its trial trip it easily travelled at the rate of eighteen miles an hour. Obstacles and rough places were passed with surprising ease, a toboggan slide course of ice and snow several feet above the level of the lake was surmounted without difficulty and while traveling at full speed. The inventor intends to use alcohol boilers in the machine constructed for practical service in Alaska, thus avoiding the danger of freezing and furthermore, considerably reducing the size of the boilers. He plans to have a condenser to condense the alcoholic steam and use it over and over again. Wood, coal or oil may be used for fuel under the boiler.

To Test Four and Six Cylinders.

As an outcome of the lengthy and heated discussion as to the respective merits of the four and six-cylinder types of engine that has been carried on in England for several months past by the advocates of the two schools, the chief representatives of which are Charles Jarrot and S. F. Edge, a \$500 cup has been put up to be competed for under the control of the Automobile Club of Great Britain. It is to be known as the "Deasy Challenge Cup" from the name of its donor, and the rules to govern the competition are in substance as follows: First and foremost, the competition is to be restricted to bona fide touring cars of standard types, such as are usually offered from stock by the manufacturers, and are to be limited in power. Cars of three cylinders or any number greater than that, are to be eligible, provided the total piston area of all the cylinders does not exceed the total maximum area of four cylinders, both this and the rule prescribing a limited power being based upon rules formulated in France for the "Circuit Europeen."

Both a minimum weight and minimum standard dimensions are to be prescribed and are to apply to the body as well as to the chassis. The minimum load will be five persons and 150 pounds of baggage or an equivalent. As the winning car is to be the one completing the course in the shortest time regardless of all other considerations, it is practically a race for touring cars, the only condition attached being that the fuel consumption, speed on the level and on grades, gear ratio, weight and other data likely to be of general interest in connection with the winning car, is to be published.

MANY TIED IN INDIA

Reliability Contest Fails to Develop Winners—How the Affair was conducted.

India is apparently like Australia as regards automobile endurance tests, in that it seems impossible to run an affair of this kind without several cars tying for first honors. It will be remembered that in the last Australian event—the Dunlop Reliability contest—five cars scored alike for first place and now comes the news from India that three cars in one class and five cars in another tied for the first honors in the reliability contest that was concluded at Bombay, January 18th.

The reliability trials were promoted by the Motor Union of Western India and comprised a series of runs from Bombay to Mahableshwar and back, extending over four days. The first day's journey was to Poona, 113 miles; the second day's to Mahableshwar via Wai; the third day's to Poona via Satara and the last day's back to Bombay. The competition was divided into four classes, as follows: A, for cars costing \$1,250 and under; B, for cars between \$1,250 and \$2,250; C, for cars between \$2,250 and \$3,000, and D, for cars costing over \$3,000.

Professionals and amateurs alike were permitted to drive, a minimum speed of twelve miles an hour and a maximum of thirty-five miles between any two places being allowed. For every minute or part of a minute spent in repairs or adjustments one point was deducted, whether such repairs were made on the road or in controls. No points were scored against them for tire troubles, however. In all thirty-two cars started from Bombay at 8 a. m., the 15th ult., and of these 15 made non-stop runs. The first arrival at Poona was W. L. Sorrel, 40 horsepower De Dietrich, who was closely followed by the Maharajah of Tikari, 40 horsepower De Dietrich. The chief event on the first day's run was the ascent of the treacherous Bhor Ghat, which was responsible for a large loss of points for some of the contestants. Five cars had not reached the control at 6:30 p. m., so they were disqualified.

At 8:16 o'clock the following morning the first car was waved off for Mahableshwar. A run of six miles and then the ascent of Katara Ghat began with a tunnel, which the competitors had to traverse to the highest point. By 4 o'clock in the afternoon all the cars which had left Poona in the morning had reached the end of the second day's journey, the DeDietrichs turning up first again. In the moonlight at 6 a. m., on January 17th, the contestants started for the run back to Poona. Overnight all the brakes had been tested on account of the hazardous and somewhat perilous slide down the Satara Ghat, a distance of 17 miles with several acute turns. All but one came through on time, and the

following day's run into Bombay was accomplished without incident. Once one of the drivers had a narrow escape from colliding with a pair of mules, but by ditching the car escaped disaster.

The three cars to tie for the first prize in Class D were the 40 horsepower De Dietrich, Sorel up; the 24 horsepower Fiat, driven by Mulraj Khatau, and a 16 horsepower Richard-Brasier, with Paul Picard at the wheel. Dr. Dean, in a 15 horsepower Argyll, was the lone survivor in Class C. In Class B, five cars tied with a perfect score, as follows: 10 horsepower Clement, Major Meyer; 10 horsepower Argyll, F. B. Stewart; 16 horsepower Clement, J. Zaberbuhler; 10 horsepower Clement, T. Hazel, and 12 horsepower Woolsley, Lieut. Jenkin. A small English runabout, driven by a native Indian, C. D. Kerrawilla, was the only one to finish with a perfect score in Class A.

Enlightening the French Peasants.

News does not travel very fast among the peasantry of the Continent and in consequence the Automobile Club of France has resorted to a novel method of informing the populace along the newly selected "Circuit de la Sarthe," over which the Grand Prix will be held, of the nature of the coming event. Every village on the course is being treated to a series of popular lectures illustrated with the aid of the cinematograph, showing the scenes, incident to the running of the previous international contests. This diplomatic step to allay local irritation and prevent the presence of broken bottles on the road is in charge of Georges Durand, a member of the club, who takes occasion to mention in the course of each lecture that all damage done to poultry or other property will be promptly paid for.

Why there is no Strain on Springs.

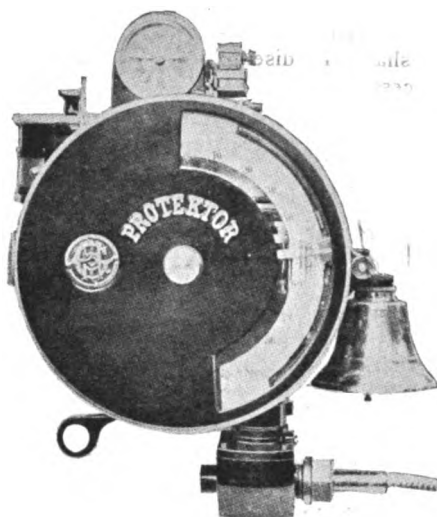
It is a source of considerable mystery to the average untechnical man that the comparatively light spiral springs which are used in ball bearings of the D. W. F. type should be sufficiently strong to keep the balls separated when the bearing is carrying a heavy load. The reason, which is perfectly apparent after a moment's consideration, is that as the pressure on the balls is only radial, and normal to the surfaces of the races, there can be no tendency for them to separate so long as the parts are kept clean and free from gummy oil.

Trophy Thieves Get Long Terms.

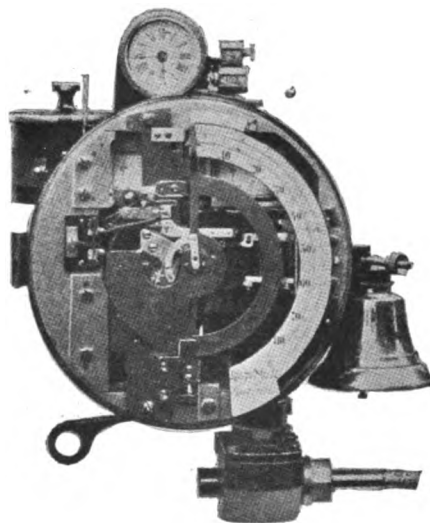
At last, mystery of the fate of the \$5,000 Pyrenees Trophy which was stolen from the exhibit of its holders at the Olympia show, in London, and about which a great stir was made at the time, has been solved. Frederick Hall and Robert Burn, who together carried off the cup in the cool, dim hours of the morning of November 27, have been convicted and sentenced, the one to three years, and the other to two years penal servitude.

Speedometer With Warning Bell.

"Geschwindigkeitsmesser" is the dainty little mouthful that the Teuton must employ every time he has a desire to say speedometer, but then that does not bother him much, because his mouth is built that way. When it comes to an English-speaking individual trying to master this specimen of



double-barreled German compounding, he would rather be excused. The occasion for referring to it is the advent of a new instrument on the German market under the title of the "Protector," which is apropos in that it is intended to warn the driver audibly



when he is exceeding the legal limit. This it does by sounding a good-sized bell which forms part of the apparatus and comes into action through the closing of an electric circuit whenever the needle passes the point for which the alarm is set. But in addition to this, it protects the driver by automatically recording the speed made at every moment of the way, on an endless strip of paper, thus furnishing evidence.

The paper strip is, of course, calibrated to represent speeds from nothing to 60 kilometres (45 miles) an hour, and is passed beneath a self-inking pen controlled by the

speed indicating portion of the apparatus the variations of which it automatically records. The paper is passed beneath the pen by means of clock-work in the usual manner, a line of dots on each side of the strip furnishing the chronograph indication. The roll of paper carried by the instrument is sufficient for 100 hours steady running. In addition to this function, it combines that of a time-keeper which surmounts the case together with a trip and season odometer and a speed indicator on its face, the scale of which is graduated up to 80 kilometres an hour. As will be evident from the accompanying illustrations showing an exterior view and revealing the "works," it is, like most German productions of this kind, of formidable appearance and size as befits its title, but in spite of these handicaps is said to be both accurate and durable. It is the product of a Dresden sewing machine factory.

Nuts that Should be Watched.

From time to time the motor should be gone over thoroughly to see that all bolts and nuts are drawn down tightly against their castings. The importance of this precaution is particularly marked in the case of the studs holding the cylinders down to the engine base, as if they are allowed to slacken up sufficiently to permit the cylinders to loosen, the result will be a continual working which not simply tends to strain the piping connections, but also has a tendency to throw the cylinders out of alignment and cause damage to the bores. Neglect of this, frequently causes a slight knock which is particularly hard to locate.

Car for the Premier.

Gradually the motor car is receiving recognition at the hands of the various powers of the world in one way or another, and its unofficial status is thereby being rendered all the more secure. Quite the latest instance of this is to be seen in the action of the State of Victoria, Australia, which has placed a machine at the disposal of its Premier. In it, he has covered many miles of territory, on one occasion making an emergency run of ten miles in some fifteen minutes and presumably thereby saving some great cause. For it is not to be supposed that so great a personage would dain to speed for the sake of pleasure alone.

Effect of Stale Gasolene.

Frequently the difficulty in starting a motor when it has been standing idle for some little time is due to the fact that the small quantity of gasolene which has been standing in the float chamber of the carburettor has become stale through contact with the air. Hence, the early charges taken into the cylinders are extremely weak. To obviate the difficulty, close the supply cock and drain off the float chamber after which it will be flooded with fresh fuel, which, in most cases, will ensure an impulse after the first compression.

CLUTCH DEVELOPMENT

Two New Variations of the Metal to Metal Type—Mors a Convert.

With the strengthening of the tendency to use metal to metal in the clutch in contrast to the, at one time, almost universally employed leather-faced cone, there have sprung up two rival schools, the adherents of the multiple disc idea, and those who pin their faith to the expanding or contracting

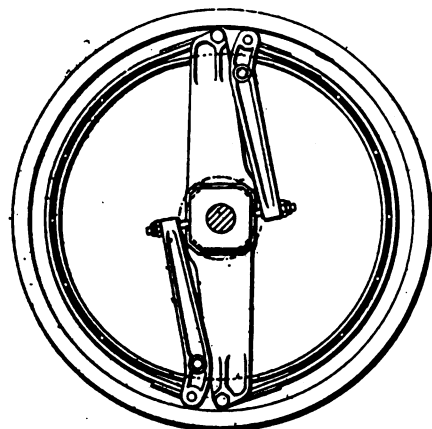


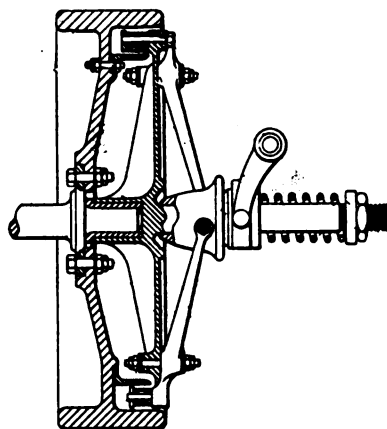
FIG. 1. MORS CLUTCH.

band, the distinction in the latter case being one of application rather than of type, for both are essentially the same. Much has already been written about the multiple disc type, which is now in its second or third year on some cars, and which seems to have more than fulfilled expectations. It has also been simplified, the number of discs in one case in particular, having been reduced to three, consisting of a bronze plate between two iron discs. But little has been mentioned of the constricting or expanding band type, which, though old in other fields as well as in the role of the individual clutch, has not been employed, so far as known, for the master clutch up to within a comparatively recent time.

One of the latest converts to the band type of clutch is the Mors, two views of which are shown in the accompanying illustration, Fig. 1. It will be apparent at a glance that all clutches of this type are but a form of brake. This is, they depend upon the principles of the latter for their operation and only differ from a brake in the manner of their application. To judge from the front elevation alone of the new Mors clutch, it would appear as if this were of the internal expanding type, but examination of the sectional view will show that it is of the constrictive order, the band acting upon a special internal rim of the fly-wheel, instead of against the inner side of the periphery of the wheel itself, as is sometimes the case. In this instance, the constricting band is in two parts, one end of each being made fast solidly to an immovable arm while the opposite ends are attached to shifting arms which are in turn fastened to

a sliding cone attached to the shaft of the transmission.

It will be noticed that these arms are pivoted at their outer ends and that movement at right angles to the axes of the latter tends to exert a pull on the ends of the two halves of the constricting band. The movement of the sliding cone to which the arms are attached is controlled in the usual manner through the medium of a collar held in action by a helical spring surrounding the shaft. To disengage the clutch it is only necessary to overcome the tension of



this spring by the use of the foot pedal, as is the case with the great majority of clutches of whatever type. The band consists of a piece of thin spring steel of great elasticity, to the face of which is riveted at regular intervals a number of cleats in

a drum carried by the spider M. At its other end which is separated but an inch or so, it is attached to the end of the lever L, which is in fact, a rocker arm, carrying the counterweight C. As is apparent from the sketch showing the front elevation, the position of the counterweight and of the rocker arm in turn, is regulated by means of a number of combination washers and a second rocker arm carrying on its end a friction roller G bearing against the hub of the spider.

The relative position of G will be better understood by reference to the sectional view. The latter further shows the usual collar for the reception of the declutching lever as well as the familiar tension spring surrounding the shaft. To the under side of the sliding collar there is riveted a tooth-shaped wedge J. In order to engage the clutch it is sufficient to work the pedal connected with the sliding collar D so that this moves forward pushing the wedge J between the roller G and the hub; this compresses the washers R in exerting a pressure against the lever of the counterweight, which in turn begins to oscillate at the same time and brings the first section of the segment against the surface at O. This movement of the segment is sufficient to overcome the inertia of the standing parts and to insure the engagement of the clutch. Owing to the curve of the wedge J, the action is progressive and when the limit of its travel has been reached the pressure is such that there is no further slipping whatever between the bronze segment and the face of the fly-wheel, although the clutch

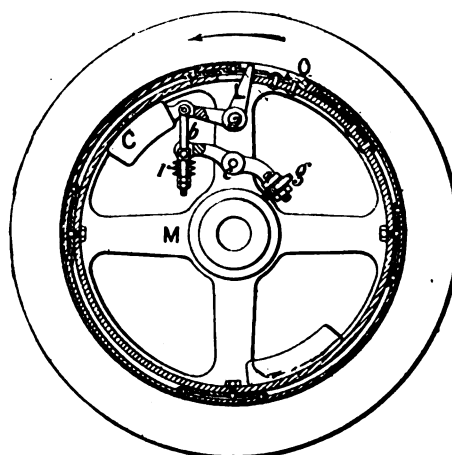


FIG. 2. JULIEN CLUTCH.

order to provide a better grip on the drum. The distance between the two is easily regulated by means of the bolts holding the inner ends of the moveable arms, in order to take up any wear on the cleats.

Another clutch of practically the same type, though of a somewhat different order, is the Julien, also of French origin. In this instance, the inner face of the fly-wheel itself is utilized for the braking surface against which a bronze segment is progressively applied. One end of this segment is riveted at the point O to the periphery of

operates in heavy grease. The progressive action is further increased by the use of the compressible washers referred to.

On the other hand, the disengagement is sudden and complete, as the space between the segment and the wheel is but two millimetres or approximately eight hundredths of an inch. The action of the counterweight under the influence of the centrifugal force generated also assists in bringing the segment out of contact. One of the chief merits of this type is its extreme lightness and hence its lack of undue momentum.

Defining the Show Chassis.

As an advertising dodge a foreign firm of tire manufacturers has been offering a prize of \$50 for the best answer to the question "What is a show chassis?" But most of the competitors who undertook to provide the necessary definition either considered the question as a conundrum or as an opportune occasion for flippancy.

One tersely replied that "Everyone knew what that was," while another laconic reply was "It is like beauty—only skin deep." From this they ranged up to lengthy technical essays on what a show chassis is, should be and should not be, while another sender felt moved to poetry. Between these two extremes came answers galore of which the following is a type. "A show chassis is a chassis, a replica of which the exhibitor hopes he can kid the public into believing they are going to buy; which the novice believes he can buy; which the expert knows jolly well he can never buy." But neither the poetic, the witty nor the facetious were equal to the applicant who replied in all seriousness that "A chassis was a female chauffeur."

Missed Wife, Kissed Mule.

Evidently all the speed records did not go to smash on the Florida beach if the following may be taken as an illustration of the fact that there are still more laurels to be won in this field. It comes from the South, also. The owner of the car was leaving to catch a train for the North and had jumped in and thrown on the high speed when he leaned out to kiss his wife good-bye, but the flight of the car was such that he missed the object of his affection and bestowed the osculation on a mule which stuck his head over the fence a mile down the road, just in time to intercept it.

Chicago Develops a Boy Prodigy.

Chicago has another celebrity in the shape of a boy with a strong penchant for running automobiles belonging to other people. He is Clarence Morgan, and has kept the Windy City police in a constant state of worry for six weeks through his fondness for getting away with unguarded cars. As a result of his automobile experiences, Clarence will be placed where there are no cars to fool with.

This is an Easy One.

"A dog that runs under a carriage is called a carriage dog, is it not?"

"Certainly."

"Well, what would you call a dog that runs under an automobile?"

"Why, a dead dog!"

—Rambler Magazine.

St. Louis Petitions for a Speedway.

Automobilists have petitioned the council of St. Louis, Mo., to convert the conduit running from the water works to Bissell's Point into a speedway for automobiles. The conduit is seven miles long.

He Wanted What was Missing.

Some of the oddities of the motoring vernacular are apt to give rise to amusing situations at times, as witness the following: A young man of wealth with plenty of leisure to enjoy it, was, after much argument and cajoling, persuaded by an automobile agent to forsake the window seat in the club, which was his chief occupation, and buy a car. The dealer being a personal friend, the purchaser relied upon his word implicitly and believed that the car he invested in was the real thing—the only thing on four wheels. Not knowing the muffler from the bonnet, and being totally unversed in the skillful manipulation of the horn or any other of the useful or ornamental accessories, he engaged a hired man at a generous stipend to hold the wheel and push the brake.

During the maiden trip, several of the club cronies were invited to ride. All went well until the start on the return trip when the motor began to cough spasmodically and finally gave up the struggle with a last, lingering sigh.

"What's the matter, Mr. Shover?" inquired the newly installed owner of the car.

"I think the engine is missing, sir," said the driver in his best professional lingo.

"It is, is it?" replied the exasperated owner of the car. "That's what I get for buying a car from a friend, but at that, I didn't think he'd strip anything from the ensemble without making me a commensurate allowance. I ordered all the accessories and I'm going back after that engine if it costs me \$10 in cab fares."

Here's the Automobile Dinner.

The automobile menu has appeared in this country, and its oleagenous and saponific components were far from attractive in name at least, but probably the climax was reached the other day in London, when an enthusiast gave a dinner to several of his friends, at which the table was decorated in a way suggestive of a motor car. There were headlights at one end, and tail lights and a number pad at the other, while the servants were dressed in chauffeurs' clothing even to the goggles and gaiters. The toastmaster prayed for silence on a motor horn, and though it is not recorded, it is to be presumed that the coffee was made over a plumber's blow torch in a corner to increase the realism as much as possible.

How Australia is "Looking up."

According to the Sunday Tribune of Sydney, New South Wales, there are at the present time something like 500 motor cars running in Sydney and its environs, while the total number of machines in use in the colony amounts to a thousand or more. Motor 'bus services are being established, or are in immediate contemplation by the New South Wales Government, as well as by several private corporations to compete with trolley lines.

Colors of the Circus Man.

With the passing of the last two years there has practically faded from the horizon the "red devil" of the daily newspaper stories. Gaudy colors have given way almost entirely to sombre and more serviceable, though none the less attractive shades. But not so with the car bought by John Ringling, the circus owner. His cars have always been very much out of the ordinary where finish is concerned, but his new Pierce will be an absolute "riot of color." Canary yellow, light green and yellow panneling have been some of his favorites in the past, but none of them will be in the same class with the brilliant carmine running gear and upholstery of the new car, set off by a body in deep orange between the two and topped off with a cape top in colors to harmonize with the remainder of the scheme. It will be a color combination visible from a distance.

Why the Gate was Slammed.

The next arrival at the pearly gates was a dapper little chap in a leather cap:

"And what was your occupation on earth?" asked St. Peter, suspiciously.

"I was an automobile dealer," replied the new arrival.

"Ah! And did you guarantee your machines not to break down?"

"Yes, that was one of my drawing cards."

"That will do. You will have to share the fate of the man who guaranteed patent leathers not to crack."

And the pearly gates closed with a dismal bang.—Ex.

Says First Car is Sweetest.

Just as in the realm of romance love's young dream remains the sweetest, so one's first love in a motor car ever lives in tender memory. "I never could create the halo of sentiment about the bonnet of my modern six-cylinder, 40 horsepower car, that I wove around my wheezy, bronchial, and altogether physically degenerate 3 pony-power motor," says the man who is now driving his fifth machine. "It was my first, and no other car, however perfect, can ever again be that. It is like the boy's first top—and his first pair of trousers. Even if he emulate Beau Brummel in after days, no clothes ever give him a tithe of the joy created by that first pair of long ones."

Denver has an Auto Mechanics' Club.

Chauffeurs and automobile mechanics of Denver, Colo., have organized as the Auto Mechanics' Club to "provide a place for social entertainment for the men working at the automobile trade, to study the technical points and care of machines, and to promote careful and good driving of cars." E. F. Crawford was elected president; Louis Sanford, vice-president; L. E. Allmon, secretary and treasurer, and J. A. Carlson, J. C. Miller, A. B. Clow and W. H. Shimpf, trustees.

FOR THE FEMALE PHYSICIAN

One of them Glorifies the Motor Car and Relates her Experiences.

"Nothing succeeds like success." Therefore when I settled down to practice I determined to let everybody know that a medical woman had come to this Northern provincial town," says a feminine M. D. in Motoring. "All the other doctors used horses. A motor-car would call attention to me. As a business axiom, if a doctor possesses but one patient he must drive a carriage. I had no patient in prospect so I determined to drive a motor-car. Whereupon my friends, motor and non-motor, proceeded to give advice. I then realized the truth of the proverb 'God deliver me from my friends, I can deliver myself from my enemies.'" However, I listened pleasantly, touched my hat metaphorically, and said "thank you, sir" to each. But I followed my own devices and advices and bought a single-cylinder, 8 horsepower car with a Cape cart hood and rolling mica windshield.

"Everybody said 'a chauffeur is a great expense.'" I agreed with everybody. But I argued thus to myself: A woman who has taken a good medical degree surely has as much capacity as the boy chauffeurs so often seen in charge of 40-horse cars. So I determined to be my own chauffeur. A local agent agreed if I bought my gasoline, lubricating oil and accessories from him, to overhaul my car once a week free of charge. I engaged a boy to wash down my car, polish brasses, etc., twice weekly at 12 cents an hour. By superintending the process I see that no damage is done.

"The first and last word for a doctor's car is comfort. I 'fussed' the makers in what they doubtless thought was true feminine style. But I thought of long night spins when my practice flourished and of all the hours I should spend at the driving-wheel when my patients grew apace. At length I achieved cushions as soft and yielding as thistledown, and then the driving lessons began. My teacher carried a bag of stones. Without warning he would throw one ahead and I had to stop before the stone was reached. It was capital practice. I had dissected bodies. It was much easier to take a car to pieces. Its anatomy was a much simpler lesson than that of the humans I had been obliged to master to obtain my degree. I had 'broken in' fractious patients at the hospital. A motor-car furnished more plastic material.

"My fame spread as I drove my motor-car abroad. I looked busy and flourishing. Nervous persons began to discover that it would be a great relief in case of emergency to know that the doctor could fly to the rescue at 40 miles an hour. My car didn't do it. But I never said so. I took my first case for a drive or two during convalescence, and two of her children. That brought me several patients.

"Every night at dusk I lighted all the lamps of my car, intending, when telephoned for to my first case, that I would create a record in promptness. I did. In less than three minutes after the 'phone sounded I was en route, and it happened to be a case where minutes counted. People call that luck. It wasn't. Only foresight in having my lamps trimmed, my tanks full, and car and doctor ready for the road.

"There were motor mishaps at first. But that wasn't money lost—merely experience bought, which always costs a good deal. Before I had a practice I had plenty of time to get over a woman's impulse to steer straight for every man, woman, child and farmyard animal she meets on the road.

"I can set a fracture with the best in a human limb; but I cannot change a tire. However, I have never failed to encounter some brawny masculine on the road who would act as chief surgeon in a tire operation for a shilling or so. Therefore I laugh at punctures and tire-changing. Doubtless some day—or rather night—I shall find myself in a fearful dilemma.

"Now that my practice has grown to quite a prosperous degree, I am gradually promoting the boy who cleans my car at so much an hour to be my chauffeur of the future when he is old enough to get a license.

"Some prejudice still exists against the medical woman. Consequently her practice covers a wider area than that of the man practitioner. The patients who are content to be treated by a 'mere woman' are often scattered about in outlying districts. Another point is that many doctors charge an extra fee when they have to take their horses out a distance of 10 miles or so. With a motor-car, the extra charge is lessened by the fact that the lost time is so materially diminished by the use of mechanical locomotion.

"The doctor who can quickest reach a patient scores as a winner. Hence the motoring practitioner must invariably be the one preferred by patients in outlying districts. 'Twice as much work with half the fatigue' is the moral I have drawn from three years' use of a motor-car. And my prescription for physicians of all sorts and conditions with regard to horseless carriages is go and do likewise as I have done, and conduct a fairly big practice with a minimum of fatigue, and a personal maximum of health and profit."

Motor Terms for Family Use.

"A girl glossary of motor terms" is the description sometimes applied to the feminine motorist with a mechanical turn of mind, says Motoring Illustrated. "Gasoline giggling" might also be an appropriate appellation for those motor talking individuals of the fair sex. Not to be able to talk gasoline, tires, speeds, clutches and throttles is to find oneself an alien listener to an unfamiliar jargon, so the feminine enthusiast soon acquires a vocabulary.

She—the mechanically minded convert of the fair sex, then begins to talk of her teeth as "sprockets." Should she suffer from indigestion she puts it down to "faulty carburation" or a "poor mixture." When tired, her batteries have "run down" and she complains of "forty horsepower" headaches. If the cook answers the mechanical matron's criticisms on her dishes, it is termed "back fire," while the larder under matutinal examination is termed the "inspection pit."

The Kaiser, his Cars and Colors.

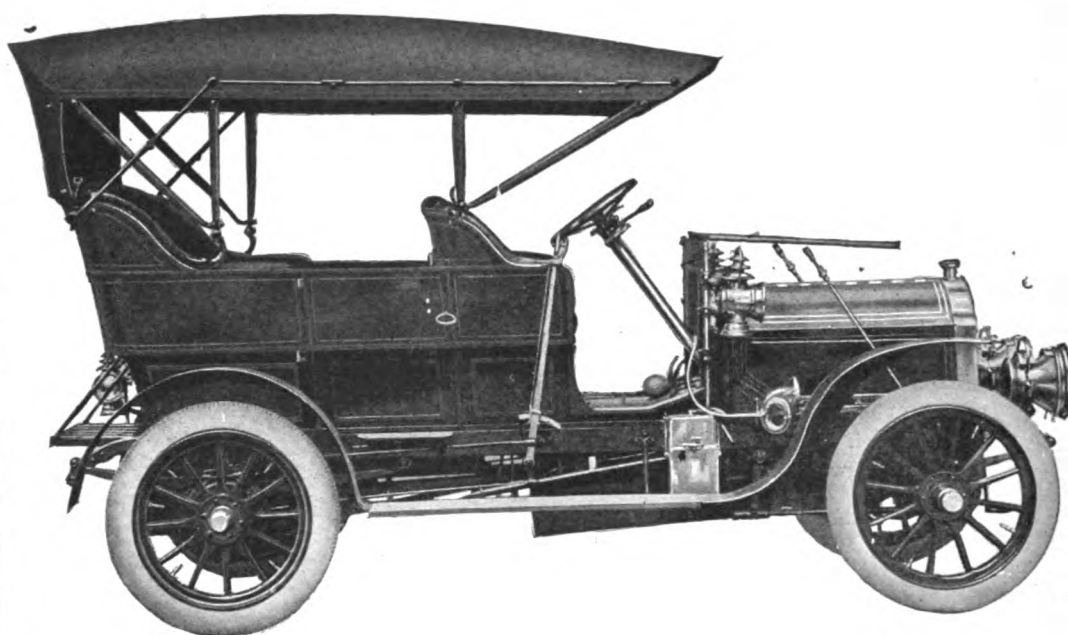
According to the latest official census the Kaiser's stud now comprises six touring cars, but one of which—a Fiat—does not claim Germany as its place of origin. This is the favorite, but it is said that no more "foreigners" will be permitted to enter the royal garage in future, although three new Mercedes of the present year's type have been acquired and will join the ranks soon.

To take care of this array, there are seven chauffeurs and an army of cleaners. Two chauffeurs invariably accompany William on his travels, one of whom has nothing more serious to do than to toot a horn with a note all its own; its unique blasts warn other traffic to make way for royalty. The chauffeurs are decked out in a uniform, which to judge from its description is a cross between that of a German cavalry officer and a hotel porter. The Kaiser's favorite colors are ivory white, blue and gold, though some of his cars are finished and upholstered in a claret red; crowns, large, small and medium—gold on the search lights, and painted a foot square on the panels, adorning every part of every car, one of them on the rear taking the place of the regulation number.

Stolen in Paris; Sold in London.

Stealing a 60 horsepower touring car would appear to be a job of proportions sufficient to phase even the most daring of the gentry with the habit of annexing the goods and chattels of others, but it did not seem to deter a trio of Frenchmen who "acquired" some \$8,000 to \$10,000 worth of car in Paris and decided to dispose of it in London.

Unfortunately for them the supply of gasoline gave out while still some miles away and the passing motorists who were appealed to for a tow on the score of being hopelessly broke down, looked askance at the proportions of the car. Finally a motor bus driver volunteered to do the job and piloted them to one of London's swell hostleries. Between them they mastered exactly two cents, which accounts for their inability to buy gasoline, and they had to call on the hotel management to foot the bill on the security of the car. Board and lodging were on the same plan and were settled for the next day by auctioning the car off for \$1,000. Then the police stepped in and goralled the takers en masse.



This is the Pierce Great Arrow, 28-32 H. P. with straight tonneau body, cape top and folding glass front. Price without top or glass front, \$4,000. Cape top, \$200 extra. Folding glass front, \$50 extra.

One convincing proof of the excellence of Pierce cars is the fact that they appeal most to the most mechanical minds. An automobile is a machine. The more a man understands about the principles of mechanics, the better he appreciates the way in which the

Pierce Arrow

is made. The initial cost of a Pierce Arrow is greater than that of any automobile made in this country, but the price seems low when compared, not only with the small cost of maintaining, but with the long time of service given. Pierce Arrows are never out of date as far as effective service is concerned. Catalogue and descriptions mailed on request.

THE GEORGE N. PIERCE COMPANY,

BUFFALO, N. Y.

Members Association of Licensed Automobile Manufacturers.

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|---|--|
| Baltimore, Md.—Southern Auto. Co., 2,021 Maryland Ave. | Pittsburg, Pa.—Banker Bros. Co., Baum and Beatty Sts. |
| Boston, Mass.—J. W. Maguire Co., 745 Boylston St. | Portland, Me.—J. A. Dowling. |
| Buffalo, N. Y.—The George N. Pierce Co., 752 Main St. (Retail). | Portland, Ore.—Covey & Cook Motor Car Co. |
| Chicago, Ill.—H. Paulman & Co., 1,321 Michigan Ave. | Providence, R. I.—The Shepard Company. |
| Denver, Col.—The George N. Pierce Co., 1,643 California St. | Rochester, N. Y.—U. S. Automobile Co., 21 Plymouth Ave. |
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| Milwaukee, Wis.—Hibbard Automobile Co. | Springfield, Mass.—E. R. Clark Auto. Co., 117 Lyman St. |
| Montreal and Ottawa—Wilson & Co., 142 Bank St. | Syracuse, N. Y.—Amos-Pierce Auto. Co., 109 South State St. |
| New York, N. Y.—Harrolds Motor Car Co., Broadway, 58th-59th Sts. | Titusville, Pa.—A. E. Lambert. |
| Oakland, Cal.—The George N. Pierce Co., 1,013 Clay St. (Wholesale). | Toronto, Ont.—Auto. and Supply Co., Ltd., 24 Temperance St. |
| Philadelphia, Pa.—Foss-Hughes Motor Car Co., 201 North Broad St. | Troy, N. Y.—Troy Auto. Exchange, 22 Fourth St. |
| | Utica, N. Y.—Utica Motor Car Co. |

The Week's Patents.

812,607. Induction Coil. John Splitdorf, New York, N. Y. Filed Nov. 15, 1904. Serial No. 232,890.

Claim.—1. A casing or retainer for an induction coil, having apertures through its walls extending from an air-space about the iron core to the outer atmosphere.

812,664. Transmission Gear for Motor Vehicles. Theodore P. Meinhard, St. Louis, Mo., assignor to St. Louis Car Company, St. Louis, Mo., a corporation. Filed Aug. 7, 1905. Serial No. 273,189.

Claim.—1. In a transmission gear, the combination of a shaft, a gear member slidably mounted upon said shaft, a slide-rod extending through said shaft and having engagement with said gear member, and a rock-shaft having connection with said slide-rod, substantially as set forth.

812,698. Elastic Tire for Vehicle Wheels. Theodore Sterne, Paris, France. Filed June 23, 1905. Serial No. 266,657.

Claim.—1. The combination with a wheel, of a resilient tread member thereof, cylindrical cushioning means interposed between the felly of the wheel and said tread member, and rigid means engaging said cushioning member on opposite sides thereof at points intermediate of the felly of the wheel and said tread member, substantially as described.

812,726. Locking Device for Automobiles. Alexander Churchward, New York, N. Y., assignor to General Electric Company, a corporation of New York. Filed June 30, 1904. Serial No. 214,713.

Claim.—1. In an automobile, speed-changing power-transmitting mechanism comprising two dynamo-electric machines electrically and mechanically connected, and means for locking the field and armature of one of said machines together.

812,729. Variable Speed Device. John A. De Vito, Roxbury, Mass. Filed May 3, 1905. Serial No. 258,671.

Claim.—1. In a variable-speed device, a driven shaft; a driving-shaft; a plurality of gears rigidly mounted upon one of said shafts; and an equal number of gears rotatably mounted on the other of said shafts, each of said rotatable gears meshing with a rigid gear; in combination with means for successively causing each pair of meshing gears to rotate the driven shaft, and a brake mechanism cooperative with said means, substantially as set forth.

812,753. Carbureter for Hydrocarbon Engines. Wesley Kouns, Salina, Kans., assignor of one-half to Frederick H. Quincy, Salina, Kans. Filed Oct. 20, 1904. Serial No. 229,263.

Claim.—In an auto-regulated carbureter, the combination with the cylinder of an engine, and a supply-pipe provided with the globe-valve, automatic check-valves and auxiliary air-pipe having an automatic air-inlet valve and globe-valve, of a gasoline tank having outlet pipe, connecting with supply-pipe, and being provided with air-inlet pipe, the lower end of which extends nearly to the bottom of said tank and its upper end having attached thereto an air-valve and its frame, substantially as described.

812,759. Wheel-Tire. William L. Loudon, Chicago, Ill. Filed May 1, 1903. Renewed Jan. 16, 1905. Serial No. 241,352.

Claim.—1. In a wheel-tire the combination of a metallic-band; a plurality of cir-

cumferential rows of wooden blocks and means for securing said blocks in position, said means comprising five flanges and clamps capable of radial adjustment between said rows of blocks.

12,450. Rim for Rubber-Tired Wheels. Orson L. Pickard, Toledo, Ohio. Filed Nov. 25, 1905. Serial No. 289,354. Original No. 771,445, dated Oct. 4, 1904.

Claim.—1. In a vehicle-wheel, a rim having a body portion divided circumferentially into two parallel abutting sections which interlock in the direction of rotation, and means for preventing independent rotation of said rim-sections, substantially as described.

812,860. Hydrocarbon Motor. Abbot A. Low, Horseshoe, N. Y. Filed Dec. 19, 1904. Serial No. 237,368.

Claim.—1. In a hydrocarbon motor, the combination of a combustion-chamber, a mixing-chamber, an inlet-valve interposed between said combustion chamber and mixing chamber, an intersticed screen in said mixing-chamber, means for injecting a jet of hydrocarbon fuel against said screen, and means for effecting a simultaneous but differential adjustment of the quality of fuel and compressed air injected against screen in the mixing-chamber, for the purpose described.

812,888. Speed-Changing Mechanism. Peter Shannon, Chicago, Ill. Filed July 5, 1904. Serial No. 215,262.

Claim.—1. In a speed-changing mechanism, the combination of a driving-shaft, a driven shaft in parallel relation thereto, gear-wheels carried by said shafts, a carrying-head capable of circular adjustment with relation to the axis of the driving-shaft, and a series of trains of variable-speed gears carried by said head and comprising a series of outer gear-wheels having variable diameters, intermediate idler-gear wheels operatively connecting said outer gear-wheels with the gear wheel of the driving shaft, and a series of outer gears of uniform diameter moving in unison with the series of outer variable gears aforesaid, and adapted to be successively brought into operative engagement of the gear-wheel of the driven shaft, substantially as set forth.

812,893. Wheel-Tire. Eugene F. Sobers, Bethlehem, Pa. Filed Sept. 19, 1905. Serial No. 279,178.

Claim.—1. The combination with a vehicle-wheel of two or more annular members movably disposed relative to the felly portion of the same and with the opposite edges overhanging, annular clamp-plates bearing against the sides of the wheel and with their inner faces overhanging, means for securing said clamp-plates to the wheel, and elastic tire members encircling the wheel between said annular members and said clamp-plates and with the side faces projecting beneath the overhanging portions of the clamp-plates and annular members.

812,937. Tachometer or Speed-Indicator. Vinzenz Koblizek, Salmthal, Austria-Hungary. Filed June 14, 1904. Serial No. 212,510.

Claim.—In a speed indicator, in combination, a rotatable shaft, a stationary sleeve secured to it, and a second sleeve sliding on it, bowed springs carrying centrifugal weights uniting the two sleeves, an angular rack carried by the sliding sleeve, indicating mechanism actuated by the said rack, clappers projecting from the sliding sleeve, and a gong rotated within range of the same, substantially as described.

812,989. Power-Brake Mechanism. Curtis B. Goode, Boston, Mass. Filed Jan. 4, 1905. Renewed Nov. 11, 1905. Serial No. 286,838.

Claim.—1. The combination with a vehicle provided with a rotatable shaft, an air compressor carried by said vehicle and provided with an air-inlet port and with an exhaust-port independent of said air-inlet port, a piston in said compressor, a reservoir communicating with said exhaust-port, a valve controlling said air inlet and exhaust ports, mechanism for operating said valve from said shaft to admit compressed air from said reservoir into said compressor, to obtain an initial rise in pressure within said compressor, which is increased by the movement of said piston in said compressor and a valve to control the exhaust from said reservoir, for the purpose specified.

812,997. Motor-Chair. John A. Himburg, Troy, Ala. Filed June 15, 1905. Serial No. 265,437.

Claim.—A device of the character described comprising a horizontally-extending framework consisting of longitudinal runners, an intermediate longitudinal runner or bar and cross-bars connecting the same, longitudinally-extending rails carried by the two outside longitudinal runners or bars, a chair provided with a bottom frame having supporting rollers at its ends mounted on said rails, a motor, a casing for said motor, said casing being secured to and carried by the intermediate longitudinal bar, a train of gearing mounted in said casing and operatively connected with the shaft of said motor, bracket-lugs projecting downwardly from the bottom frame of the chair, a pitman connected at one end to said lugs, and a crank operatively connecting said pitman with the said train of gearing, as and for the purpose set forth.

813,035. Spring-Wheel. Frank A. Born, Grover, S. D. Filed May 17, 1905. Serial No. 260,874.

Claim.—1. The combination with a wheel including inner and outer spaced rims, pairs of brackets carried by the outer rim, a rod slidably engaged in each pair of brackets, plungers having passages therein in which the rods are engaged between the brackets, said plunger being slidably engaged between the plungers and the brackets, helical springs engaged with the rods between the plungers and brackets, helical springs engaged with the rods outwardly of the brackets, washers engaged with the rods outwardly of the last-named helical springs and cotter-pins engaged in the rods beyond the washers, and means for holding the outer rim yieldably against movement toward the inner rim.

813,043. Valve-Controlling Mechanism for Explosive Engines. David F. Graham and Frank A. Fox, Stamford, Conn., assignors, by mesne assignments, to The Eisenhuth Horseless Vehicle Company, Middletown, Conn., a corporation of Maine. Filed Mar. 11, 1903. Serial No. 147,228.

Claim.—1. In a controlling device for inlet-valves of explosive-engines, the combination with a vapor-pipe having a plurality of inlet-openings and valve-seats for said inlet-openings, of inlet-valves for controlling said openings, throttle-wheels, a connection between said wheels for causing them to operate in unison and connections between said throttle-wheels and valve-stems, substantially as described.

813,044. Motor-Vehicle. Peter E. Hanson, Galveston, Tex. Filed June 24, 1905. Serial No. 266,782.

Claim.—1. A self-propelled, dumping-

dray comprising an axle provided with and supported by traveling wheels, a main frame having a rear section connected with and arranged to swing vertically on the axle, and also having a forward section hinged to the rear section at a point in advance of the axle, whereby the frame is adapted to flex, means detachably connecting the said frame-sections with a view of retaining the same in alignment with each other, a pilot-wheel carried by the forward-frame-section, a motor carried by the rear frame-section, and a driving connection intermediate said motor and the axle.

813,052. Electric Brake for Vehicles. Joseph N. Mahoney, Astoria, N. Y., assignor by mesne assignments, to American Electric Brake Company, a corporation of New Jersey. Filed Nov. 8, 1901. Serial No. 81,604.

Claim.—1. The combination with an electric braking system, of an automatically-acting controller mounted on the vehicle and operating to control or vary the braking-current within appropriate limits in relation to the speed of the vehicle to thereby vary the pressure between the braking-surfaces and increase the efficiency of the braking operation.

813,058. Automobile. William T. Penrose, Spokane, Wash. Filed June 26, 1905. Serial No. 266,994.

Claim.—In a vehicle, the combination with upper and lower horizontally-disposed frames, of depending brackets carried by the upper frame, longitudinally-extending arcuate plates carried by the brackets, longitudinally-extending arcuate plates carried by the lower frame in vertical alignment with the first-named plates and spaced therefrom, a plate carried by the lower frame, a vertical shaft pivotally mounted upon the plate and in the upper frame, a live axle journaled horizontally in the vertical shaft and extending between the spaced plates, rollers carried by the axle and engaging the plates, wheels carried by the axle and meshing with the first-named bevel-gear, and means for driving the first-named bevel-gear.

813,068. Explosive-Engine-Starting Mechanism. Henry J. Wiegand, Milwaukee, Wis. Filed May 21, 1904. Serial No. 209,018.

Claim.—The combination with an explosive-engine shaft, a starting-crank therefor, a catch for locking the crank to the shaft, a cam-lever for controlling the catch, a pawl for controlling the movement of the lever and a stationary part arranged to move the pawl to disengage the catch when the shaft is moved in a reverse direction.

813,081. Sparking Igniter for Explosive-Engines. George Cormack, Jr., and Frederick C. Zumdahl, Rockford, Ill. Filed Feb. 5, 1904. Serial No. 192,105.

Claim.—1. An igniter for gasoline-engines, comprising two points, one being movable, an arm having a connection with the movable point, and an operating-bar having one end provided with a notch forming two sections, said bar being movable transverse to its length to bring either section of the end under the arm, in order that the time of ignition may be changed.

813,104. Sparking Device. Harry A. Miller, Los Angeles, Cal. Filed Jan. 14, 1905. Serial No. 241,004.

Claim.—1. An ignition device, comprising a plug, a spring-held reciprocable contact member, an oscillating contact member, a chamber communicating with the inner end of the plug, and a member con-

tained in said chamber and exposed to the cylinder-pressure and serving to actuate said second-named contact member, for the purpose set forth.

813,116. Valve-Gear for Explosion-Engines. Hans Richter, Nuremberg, Germany, assignor to The Firm of Vereinigte Maschinenfabrik Augsburg und Maschinenbaugesellschaft Nurnberg A. G., Nuremberg, Germany. Filed Aug. 23, 1904. Serial No. 221,863.

Claim.—1. In valve-motions for explosion-engines, the combination, of a passive roller-track actuated by the governor and an active roller-lever working upon said passive roller-track and actuated by the eccentric-rod with a catch loosely mounted on a bolt in the inner end of the active roller-lever and adapted to come in engagement with a cross-piece arranged in the head of the valve-rod and to be brought out of engagement with said cross-piece by a note fixed on the active roller-lever, substantially as described.

813,175. Automobile-Frame. Albert E. Schaaf and Frank S. Davis, Toledo, Ohio. Filed Aug. 27, 1904. Serial No. 222,390.

Claim.—A member for automobile-frames comprising a metallic bar bent to present an exterior bearing-surface as and substantially parallel supporting members as said supporting members being approximately perpendicular to the said bearing-surface and longitudinal strengthening-beads, formed upon the outer margins of the said supporting members, said strengthening-beads being formed by folding back upon themselves the margins of the supporting members substantially as described.

813,185. Speed Indicator. Bernhard Volkmar, New York, N. Y., assignor, by direct and mesne assignments, to The Acme Auto-Meter Company, New York, N. Y. Filed July 21, 1905. Serial No. 270,611.

Claim.—1. In a speed-indicator, a revolving shaft, a cone, a governor-ring having connection with a fixed point on the shaft and mounted to the slide on the shaft, the said ring also having connection with said cone, and means for resisting the centrifugal force of the said ring.

813,186. Steering-Gear for Automobiles. Jesse Warrington, Indianapolis, Ind., assignor to Nordyke & Marmon Company, Indianapolis, Ind., a corporation of Indiana. Filed June 29, 1904. Serial No. 214,579.

Claim.—1. In a steering-gear, the combination, with the steering-shaft and worm carried thereby, of a worm-segment meshing with said worm and consisting of a pair of mating toothed segments angularly adjustable relatively to each other, an inclosing casing for said parts, and adjustable means accessible from the exterior of said casing for yieldingly holding said mating segments in various positions of relative angular adjustment.

813,203. Muffler. Gustave E. Franquist, New York, N. Y. Filed Sept. 13, 1905. Serial No. 278,267.

Claim.—1. A muffler comprising a drum or casing having a perforated diaphragm transverse to the drum or casing and a wall whereby the same is divided into a receiving chamber, an equalizing chamber and an exit-chamber, and tubes for connecting the exit-chamber with the equalizing-chamber at a point in the region of the center of the latter.

813,204. Engine-Driven Blower for Explosion-Engines. Lee A. Frayer and Wil-

liam J. Miller, Columbus, Ohio. Filed Jan. 11, 1905. Serial No. 240,570.

Claim.—In an air-cooled explosion-engine, a secondary starting-shaft, a blower mounted thereon, a small pinion on said shaft, a prime moving shaft, a relatively large cushioned gear-wheel thereon meshing with said pinion and adapted to form a yielding connection between said blower and said prime moving shaft, and whereby the speed of said blower is greatly accelerated.

813,213. Motor-Propelled Vehicle. Warren S. Johnson, Milwaukee, Wis. Filed Nov. 10, 1904. Serial No. 232,165.

Claim.—1. In combination with the body of a vehicle, a turn-table; a divided driving-shaft carried by said turn-table; a motor for imparting rotation to said shaft; differential gear interposed between the motor and the shaft-sections; ground-wheels connected with the respective shaft-sections; and means whereby either wheel may be temporarily held against rotation while the other is left free to turn.

813,229. Detachable-Link Chain. Archibald D. Morris, New York, N. Y. Filed Nov. 19, 1904. Serial No. 233,435.

Claim.—1. In a detachable-link chain, the combination of the interior link members with the exterior link members, pins connecting said exterior and interior members, and rotatable retaining-pins formed with flanges and overlapping the exterior link members, said flanges normally retaining the members in operative relation.

813,305. Supply and Exhaust Valve Mechanism for Motors. Wilber H. Johnson, Cumberland, Md. Filed July 5, 1902. Serial No. 114,436.

Claim.—1. In a motor, the combination of a motor, a piston operating therein, a fluid-supply pipe, a controlling valve in said pipe, reciprocating means governed by the piston for periodically operating said valve, an exhaust-valve in the supply-pipe controlling the exhaust of spent fluid from the motor to the atmosphere, and means of which the first-mentioned means form a part for operating the exhaust-valve alternately with the said controlling-valve.

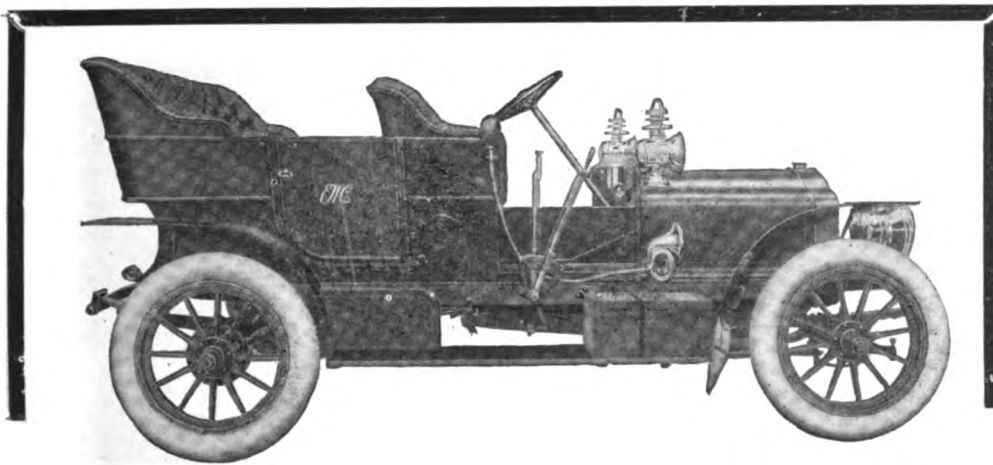
JONES SPEEDOMETER

success in meeting the most exacting requirements as regards permanent accuracy, durability and simplicity of construction has given it an international reputation and made us the largest manufacturers in the country for this class of instrument.

Owing to the great demand for the instrument last Spring, our factories were unable to make prompt delivery on all orders. This temporary short supply caused several attempted and inferior copies of our device to be placed on the market. The unsatisfactory results to buyers of these poor imitations caused a great number of complaints to reach us; many persons believing that they were instruments of our manufacture. We therefore warn all intending purchasers that there is only one JONES SPEEDOMETER and that is manufactured in New York, and has the words "Manufactured by Jos. W. Jones, New York," engraved on the dial.

JONES SPEEDOMETER
132 West 32d Street New York





ILL MATCHED HORSES DRAW BADLY

is an old saying which holds true with the explosive force of an automobile engine, for the irregular explosions of the four-cycle engine are like ill matched horses. The Four Cylinder Two-Cycle Elmore Engine produces a constant, unbroken application of power with no intervals between the impulses. The expansive force of one explosion is only half way through when another begins.

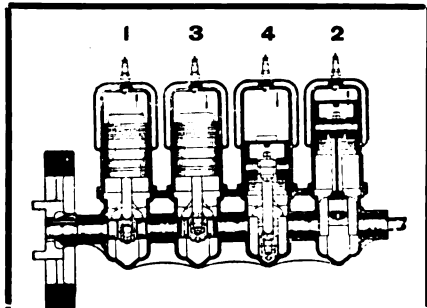
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The easiest self-starting car made, goes everywhere—anywhere—without change of gear. Can be throttled down on the high speed to two miles an hour or speed along at the rate of 45 miles an hour, up hill or on the level, always the same. Runs quietly and smoothly over rough roads. All inlet and exhaust valves and from 18 to 20 parts on each cylinder have been done away with. Actually 50 per cent. of moving parts eliminated. Cost of maintenance reduced fully 50 per cent. The small cost of up-keep has made the two-cycle Elmore the most desirable car in the world. Send for catalogue describing the Four Cylinder Two-Cycle Elmore at \$2,500.00 and the Three Cylinder Two-Cycle at \$1,500.00.

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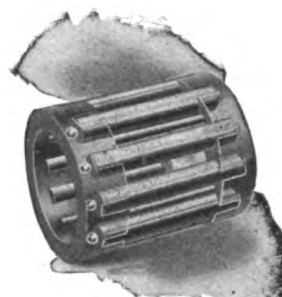
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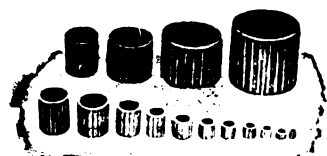
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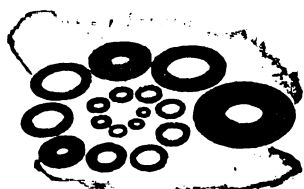
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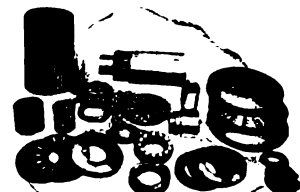
Ball Thrust Collars.



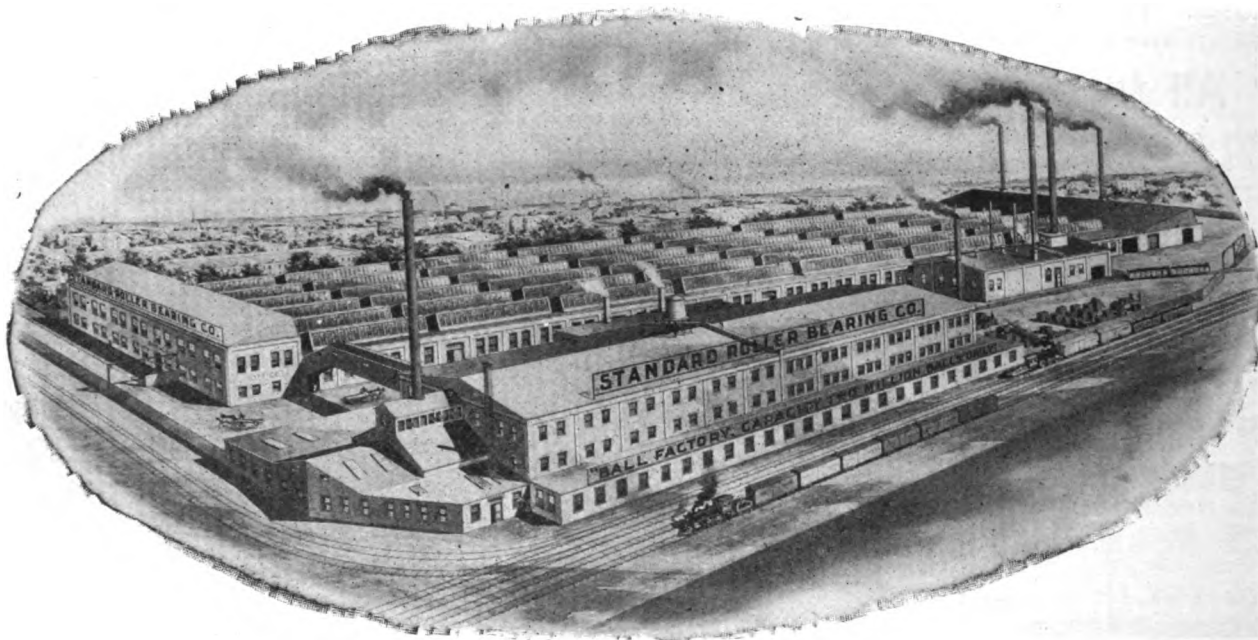
Rear Automobile Hubs.



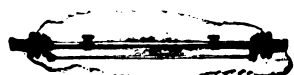
Plain Roller Thrust.



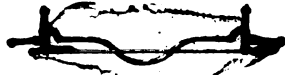
Miscellaneous Bearings.



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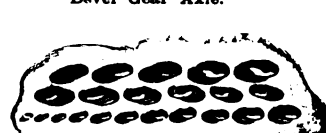
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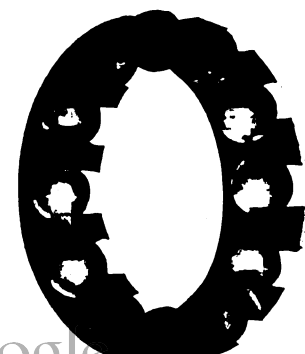
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The Week's Patents.

813,250. Internal-Combustion Engine. Clarence M. Steele, Statesville, N. C. Filed Apr. 7, 1905. Serial No. 254,312.

Claim.—1. An internal-combustion engine, comprising two parallel crank-shafts, a cylinder hung on one crank-shaft and a piston hung on the other crank-shaft, means for holding the same parallel, and means for maintaining the intake and exhaust connections.

813,316. Automatic Cut-Off for Explosive-Engines. Max Munzel, Brunswick, Germany. Filed Jan. 6, 1905. Serial No. 239,918.

Claim.—1. An automatic cut-off for explosive motors comprising the combination with a suction-pipe, of a valve mounted therein, means for shifting the valve to

open position, means for retaining the valve in an open position, means for automatically returning the valve to closure position when released, and means for adjusting the valve after the same has been shifted to open position.

813,365. Cask or Vessel for Ignition or Explosive Liquids or Gases. Wilhelm Dreyer, Bad Rothenfelde, Germany. Filed Aug. 10, 1905. Serial No. 273,679.

Claim.—1. A device of the class described, including a plurality of annular sections having central openings, space members interposed between said sections to form openings therebetween, a bushing having an opening corresponding to the central openings of the annular sections, and means for securing the said bushing and annular sections together.

813,369. Clutch. Archibald H. Ehle and Jesse H. Nice, Philadelphia, Pa., assignors to Burnham & Williams Company, Philadelphia, Pa., a firm. Filed July 22, 1905. Serial No. 270,853.

Claim.—1. The combination in a clutch, of a hub, of levers pivoted thereto, shoes carried by the levers, a ring with which the shoes engage, and a shifting ring connected to the levers, the said levers passing through said shifting ring, substantially as described.

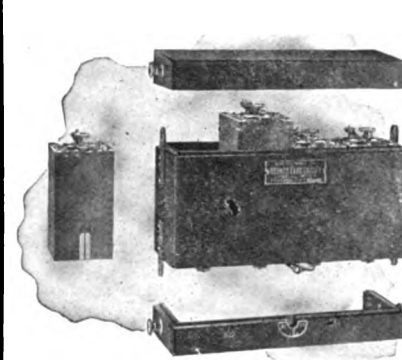
"The A. B. C. of Electricity" will aid you in understanding many things about motors that may now seem hard of understanding. Price, 50c. The Motor World Publishing Co., 154 Nassau Street, New York City. ***

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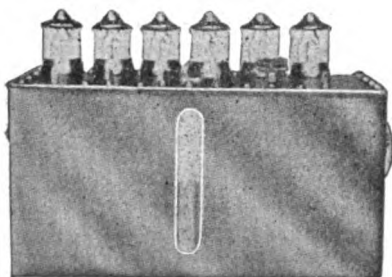
31-33 West 31st Street, New York.

PHILADELPHIA, Michelin Tire Agency, 1437 Vine St., J. L. Keir, Mgr.

CHICAGO, Michelin Tire Agency, 1220 Michigan Ave., D. J. Canary, Mgr.

BOSTON, Leon Rubay.

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That is a strong statement. We have not, however, made it unthinkingly. We repeat, that the Thomas excels point for point—contains all that is excellent in the best foreign cars. It has improved upon nearly all the foremost features included in these cars. And it contains elements of efficiency which cannot be found in any other car on either side of the ocean.

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mechanism is seldom, if ever, overtaxed, which is the chief cause of expensive repairs.

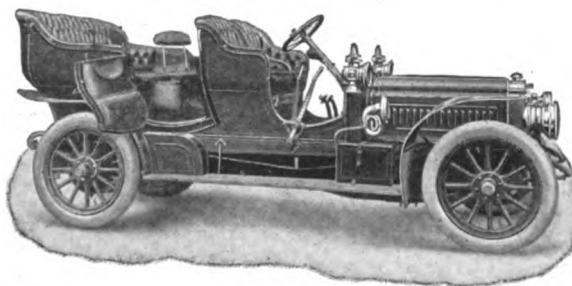
Early in the season we said: "Every (stock) Thomas car guaranteed to show sixty miles an hour before leaving the factory." That statement still stands.

At the same time that we issued this announcement we also stated over the affidavit of five responsible citizens that

the Thomas had negotiated a 14% grade on the high speed carrying five people and showing 40 miles an hour at the summit of the hill. That statement also stands.

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We also ask that you bear in mind constantly, that our claims are broad, sweeping and comprehensive—and that when we claim for the Thomas world leadership we expect you to put us to the test in every way that may suggest itself to your judgment and experience.



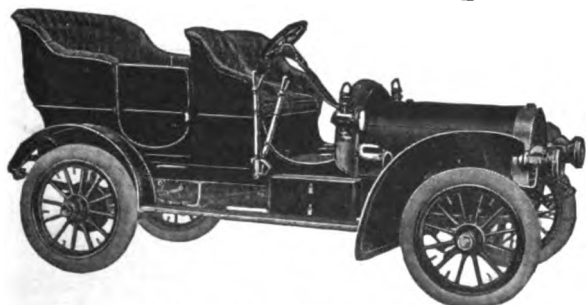
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1416 Niagara Street,

BUFFALO, N. Y.

Members Association of Licensed Automobile Manufacturers.

National

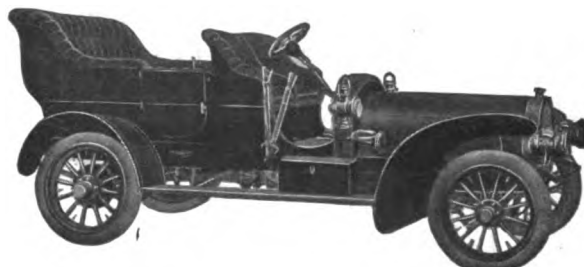


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National Model E is an innovation in touring cars that will be extensively copied. It is powerful, simply controlled, practically noiseless and its comfortable, roomy aluminum body seats seven passengers, all facing forward.

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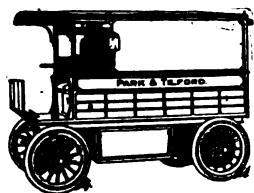
Innocent Motor Co., 163 Columbus Ave., Boston
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Tioga Auto Co., Broad and Tioga Sts., Phila.
Robt. F. Boda & Co., 68 E. Noble St., Columbus, O.
Colonial Auto Co., 3944 Olive St., St. Louis, Mo.

Liberty Auto Co., 138 Beatty St., E. E., Pittsburg
National Motor Car Agency, 705 S. Main St., Los Angeles, Cal.
Fawkes Auto Co., Minneapolis and St. Paul
McKinley Motor Car Co., Rochester, N. Y.
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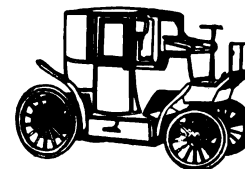
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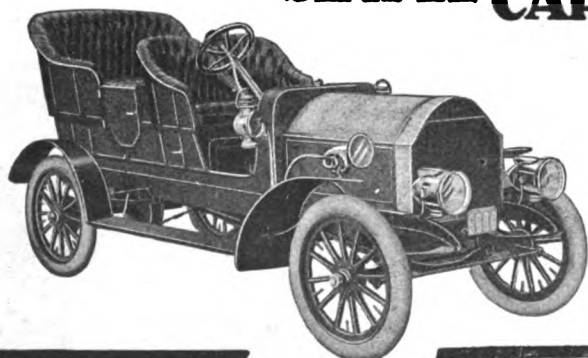
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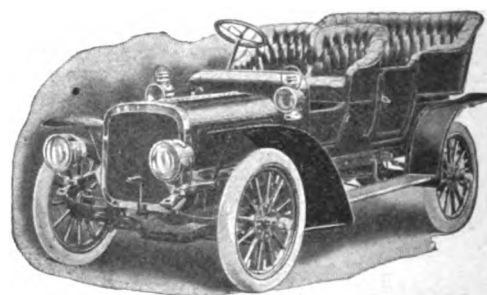
both as to construction and control and the easiest to operate and maintain.

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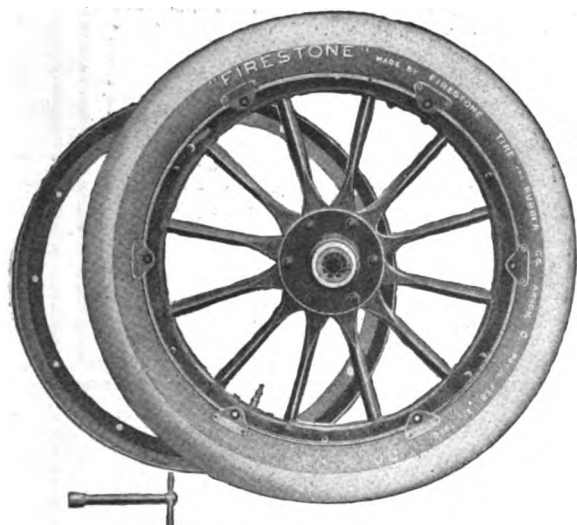
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A FIRESTONE PNEUMATIC TIRE cannot possibly come off the rim no matter how severe the service. Were they not otherwise fastened, the flanges alone would hold them in place. We safeguard them, however, by the use of steel clips, securely fastened to the edges of the tire with large, smooth headed rivets. Through these clips, the flanges and the felloe, half-inch bolts are passed and firmly screwed in place.

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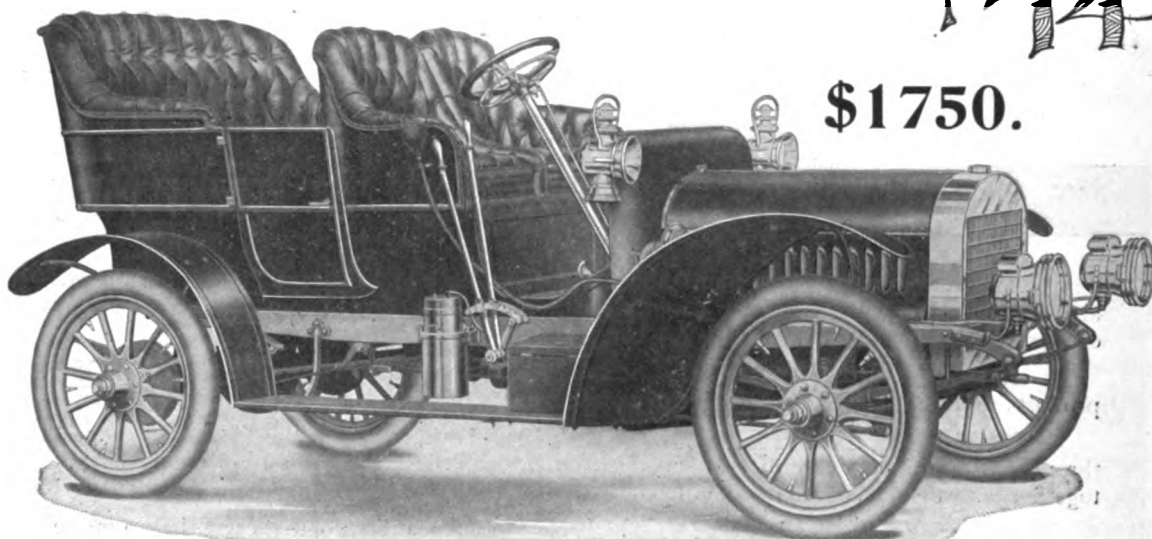
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Rambler

Model
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\$1750.



It was generally conceded the financial proposition of both shows.
It is a medium weight touring car, strictly modern in design, equipment and appointments.
The logical result of years of study and development in the direction of simplicity in design and structural economy.

The power plant comprises a four cylinder vertical motor with sliding gear transmission and shaft drive.

The accessories, such as carburetter, igniting, lubricating and cooling systems, are all the latest and most approved types.

Only the concentrated efforts of a large and perfectly equipped organization render possible the production of such a car at such a price.

Not only is the first cost attractive but the structural simplicity assures the minimum expense of care and upkeep.

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THE MOTOR WORLD.

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE
AND KINDRED INTERESTS

Volume XII.

New York, U. S. A., Thursday, March 8, 1905.

No. 6.

SHOW SITUATION THICKENS

Action of N. A. A. M. Further Unsettles
Things—Guarantees and Contests
Discussed.

More interest was added to the already complicated show situation by the action of the Executive Committee of the National Association of Automobile Manufacturers at their monthly meeting in New York yesterday. They took a firm stand in favor of two national shows only, one in New York, the other in Chicago. There was even some disposition to eliminate Chicago, but the Western influence prevailed. The action of the association was crystalized in the following resolution:

Whereas, in the opinion of the Executive Committee the local shows of 1906 have not been productive of benefits to the industry commensurate with the loss of time and expense involved, therefore be it

Resolved, that no shows be sanctioned hereafter excepting one annual show each in New York and Chicago, and that the resolution relative to exhibits at unsanctioned shows be continued in force.

On the surface this appears to eliminate all local shows, and also, to somewhat embarrass the outdoor show projected by the American Motor Car Manufacturers' Association. The New York situation would also appear to be compromised, as the Association of Licensed Automobile Manufacturers have leased the Madison Square Garden for 1907, and as their members are in control of the N. A. A. M., it seems inevitable that that will be the only New York show to be sanctioned, which will leave "out in the cold" any independent manufacturers who may wish to exhibit in New York.

At this meeting, the N. A. A. M. Show Committee was increased from three to five members. M. J. Budlong, Electric Vehicle Company, was re-appointed chairman. The other members are G. W. Bennett, T. B. Jeffery & Co.; W. T. White, White Sewing Machine Co.; W. E. Metzger, Cadillac Motor Car Co., and C. C. Hildebrand, J.

Stevens Arms & Tool Co. In addition to Mr. Budlong, Mr. White is also a re-appointed. President Cutler also announced the appointment of these other committees: Legislation—G. W. Bennett, W. R. Innis and A. L. Pope.

Contest—S. D. Waldon, W. T. White, S. T. Davis, Jr., L. H. Kittredge and A. L. Pope.

Membership—S. T. Davis, Jr., G. W. Bennett and P. Owen.

Show—M. J. Budlong, G. W. Bennett, W. T. White, C. C. Hildebrand and W. E. Metzger.

Transportation—W. T. White, Charles Clifton and W. R. Innis.

Auditing—P. Owen, A. L. Pope and M. L. Goss.

Good Roads—S. D. Waldon, S. T. Davis, Jr., and E. R. Thomas, of Buffalo.

W. E. Metzger was elected a member of the Executive Committee to succeed Roy D. Chapin, resigned.

The subject of guarantees was among the topics of discussion, and after some little debate it was resolved that there was no necessity for departing from the present sixty-day warranty.

The Glidden Tour was also discussed, as likewise were several other projected contests and as a result the attention of the members will be called to the resolution passed last October, which recites that "This association is opposed to the holding of contests in the United States which have not been approved by its Executive Committee, and that it is not to be permissible for any member to take part in any unapproved contest under the penalty of being debarred from participating in such events as may be held with the approval of or under the auspices of this association." The Contest Committee has several recommendations regarding the Glidden rules that it will present to the A. A. A. It is stated that the price classification is one that will be objected to.

The association's share of the profits of the Chicago show was reported to be \$25,000, one-half of which is to be rebated to all those exhibitors who had participated in at least one previous show in the Western city. With the \$25,000 in hand, the strong box of the N. A. A. M. will contain approximately \$55,000.

The Show Committee will to-day meet S. A. Miles, secretary of the association, who personally has re-leased the Chicago Coliseum. At this meeting, it is expected that the contract which has hitherto existed with Miles will either be continued, or new terms agreed upon.

Those present at the meeting were: E. H. Cutler, A. L. Pope, G. W. Bennett, M. J. Budlong, L. H. Kittredge, Charles Clifton, P. Owen, S. D. Waldon, S. T. Davis, Jr., C. C. Hildebrand and W. R. Innis.

Steel Ball Sues Buick for \$25,000.

The Buick Motor Co., Jackson, Mich., has been made the defendant in a suit for \$25,000 damages, instituted by the Steel Ball Co., Chicago. Breach of contract is the allegation. The Steel Ball Co. claims that the Buick people contracted to use the Hill Precision oiler during 1905 and although the goods were tendered them on several occasions, they were not shipped at the Buick request. According to the Steel Ball Co.'s allegation, the Buick Motor Co. entered into a contract to use another oiler, despite their agreement to employ the Hill device, and did use it to the hurt and injury of the plaintiffs.

Flint Concern in Receivers' Hands.

The Auto Brass & Aluminum Co., Flint, Mich., is in the hands of George A. Marston, as receiver. While a meeting of the creditors was being held to investigate the affairs of the concern, the Great Western Smelting and Refining Co. forced it into bankruptcy and the receivership followed. Castings and a force-feed oiler comprised the product of the bankrupt concern, whose assets are about \$10,000 and liabilities about \$28,000.

Jeffery Obtains Award of \$50,000.

Thomas B. Jeffery & Co. were last week awarded the sum of \$50,508 as damages incident to condemnation proceedings necessary to obtain right of way for the C. & N. W. R. R. through the Jeffery factory lands in Kenosha, Wis. The railway company acquired a 100-foot strip which entailed the destruction of the Rambler testing track and the destruction of the foundation for a new building.

In the Retail World.

The Roanoke Automobile Co. will build a garage at Roanoke, Va., to cost \$3,000. The dimensions are not given.

M. A. Newmark is erecting a garage on South Spring street, Los Angeles, Cal. The building will measure 100x60 feet.

George Taylor, of Rahway, has contracted for the erection of a garage on his property on St. George's avenue.

Samuel Graybill is erecting a garage at Elizabethtown, Pa. It will stand on the Engle property, opposite the Exchange bank.

James Millard & Son will erect a garage adjoining their machine shop on Broadway, Kingston, N. Y. The building will measure 60x80 feet.

Walter B. Johnson, a carriage dealer of Essex Junction, Vt., has embarked in the automobile business. He has taken on the Buick as a starter.

D. H. Boyd has "opened up" in Newark, N. J., as the owner of the Astor Garage. He will do a general garage business at 40 Sherman street.

The New Jersey Vulcanizing Company has established itself at 83 Halsey street, Newark, N. J. As the name signifies, it will repair automobile tires.

The Seacoast Garage Co., of Long Branch, N. J., is building a garage at Brighton and Norwood avenues, that city. The estimated cost is \$22,000.

George F. Dyer has leased the Swett stable property, Manchester, Mass., and will do business as Dyer's Auto Depot. The garage will be opened April 1.

F. A. Goddard and E. T. Reynolds have leased the old pumping station at Lynn, Mass., and will convert it into a garage. They will operate as the Swampscott Automobile Co.

The Aerocar Company of New York has been formed to handle the "quick comer" of that name, and has located at Broadway and 73rd street. The show room fronts on both streets.

The American Motor Car Co., of Boston, has been organized in the New England metropolis and located at 70 Kilby street. It will handle the American car made by the Indianapolis concern of that name.

Hawkins & Moore, of Woodland, Cal., have sold the Woodland Garage at that place. H. H. Lusk, of Woodland, and George Bielar, of San Francisco, who will continue the business, are the purchasers.

The Wyoming Valley Motor Car Co. has been formed at Wilkesbarre, Pa., to do a general garage business. It has located at 35-37 North Washington street, and elected these officers: President, Ambrose West; vice-president, James Cool; secretary and treasurer, Laning Harvey.

The Essex Automobile Co., of Newark, N. J., has removed from Lombardy street to the large and well equipped garage at 79 Orange street, formerly occupied by the

Auto Vehicle Co. The latter company took possession of its new garage at the corner of Clinton and Elizabeth avenues, on Thursday of last week.

The Mora Motor Car Co., of Rochester, N. Y., has finally located in Newark, N. Y., and machinery is being set up in the old Reed building which has been acquired. The company will merely assemble cars, having the parts made elsewhere.

Chattanooga, Tenn., now has a garage, the Sid Black Automobile Co., of Cincinnati, Ohio, having last week opened a branch in the Tennessee city, at 707 Chestnut street. Fred Joyce is in charge. Thomas, Franklin, Buick and Olds cars will be carried in stock.

Fire Commissioner William Fowden, of Atlantic City, is having plans prepared for the erection of a fireproof four-story garage for that resort. The machine shop will be on the first floor, the salesroom on the second, while the third will be utilized for storage purposes. The location has not been decided upon.

The H. J. Willard Automobile Co., agents in Portland, Maine, for the Peerless, Winton, Elmore, Packard, Franklin, Buick and Cadillac cars, has acquired the car barn on Spring street which it will fit up as a garage. With the salesrooms on Lafayette street, this addition will give the company ample elbow room.

J. A. Clairmonte, a former New Yorker, who obtained the Napier agency for Southern California, has organized the Napier Automobile & Garage Co., at Los Angeles, Cal., with himself as president, F. K. Rule, secretary, and Frank McDonald, treasurer. The company will shortly remove to new quarters at 719 South Spring street.

Theodore Jonas, president of the Jonas Automobile Co., 726 National avenue, Milwaukee, Wis., died at his home in that city, on February 23, from a complication of diseases. For many years he was identified with the bicycle trade in that city, and took up the automobile in 1901. The business will probably be continued by his brothers, August, William and Gustave Jonas.

Thomas W. Morse, the Lenox (Mass.) dealer, will enlarge his garage at that place before the season sets in. An addition will be built to the east extending to Church street, 32x46 feet, and a cement floor and other improvements are to be made. Morse's line for this year comprises the Pope-Toledo, Pope-Waverly, Pope-Hartford, Pope-Tribune, Ranier and Berkshire cars.

A new company in Baltimore, Md., is the Motor Carriage Co., which was incorporated last week with \$10,000 capital, to handle the Winton, Pope-Hartford and Pope-Tribune cars. G. F. Bucholz, James Caldwell and W. C. Hood are named as the incorporators. The show rooms of the company will be centrally located, probably on Howard street, with a garage on North avenue.

An agency for the Olds cars has been opened at 531 North Howard street, Baltimore, Md., under the style of the Oldsmobile Co. Oliver Light, formerly identified with Cadillac interests, and Charles D. Purroy, formerly prominent in the fire department of New York City, compose the firm. An addition, 40x50 feet, is being built in the rear of the building and a second story may be added later.

The Ranier Co., last week, parcelled out Ranier territory with a generous hand, three of their agency appointees getting entire States, as follows: Van Automobile Co., St. Louis, the State of Missouri and Southern Illinois; Paxson Motor Car Co., Cleveland, the State of Ohio; A. H. Hayes, San Francisco, the State of California; T. S. Morse, Lenox, Mass., the Berkshire district of that State.

The business of the Dominion Motor Car Co., which carried on a large trade in Montreal, Canada, has been acquired by Henry Morgan & Co. The new concern will occupy a disused factory at the foot of Beaver Hall Hill, which is being remodeled for their purposes. The garage will be located on the first two floors and, owing to the peculiar situation of the building on the hillside, will have advantage of ground entrance to both floors. The company has taken the Montreal agency for the Maxwell cars.

The Week's Incorporations.

New York City, N. Y.—Automobile Maintenance Co. of America, under New York laws, with \$200,000 capital. Corporators—Frank Van Order, William Meick and C. F. Keyes, all of New York.

Newark, N. J.—Pneumatic Tire Shield Co., under New Jersey laws, with \$200,000 capital; to make tires and appliances. Corporators—S. Wilson and J. Brunton, New York City, and A. G. Mager, Newark.

Brookline, Mass.—Dingle Wetherbee Co., under Massachusetts laws, with \$25,000 capital; to deal in automobiles. Corporators—Elliot C. Lee, Brookline; S. K. Dingle, Boston, and R. A. Jordan, Brookline.

Wilkes-Barre, Pa.—Wyoming Valley Motor Car Co., under Pennsylvania laws, with \$50,000 capital; to deal in automobiles. Corporators—Ambrose West, of Plymouth; James Cool and Laning Harvey, of Wilkes-Barre, Pa.

New Rochelle, N. Y.—Wallace Brothers' Automobile Co., under New York laws, with \$25,000 capital; to deal in and repair automobiles. Corporators—James Wallace, William Wallace, Charles R. Maltby, of New Rochelle, and William B. Dungan, of New York City.

Baltimore, Maryland.—Baltimore Motor Carriage Co., under Maryland laws, with \$10,000 capital; to deal in and repair automobiles. Corporators—George Buckholtz, Wallace C. Hood, Harry M. Benzinger, James S. Caldwell, Edwin R. Stringer and Walter E. Collier.

AUSPICIOUS EXPORT START

January Shows a Substantial Increase— Mexico and Italy Conspicuous.

The year began auspiciously in the matter of exports. The statistics for the month of January, 1906, show an increase of more than \$100,000 as compared with the same month in 1905. Unfortunately, the destination of the American cars exported was not indicated prior to July, 1905, so that a comparison of the various items comprising the total cannot be made.

In the present instance, the United Kingdom leads off with \$114,991, and the next largest figure in the list, \$40,461, is that of British West Indies and Bermuda, with British Australasia a close second with \$32,669, and British North America, \$22,107. One of the surprises embodied in the report is to be found in the size of Mexico's total of \$30,935, as well as that of \$20,005 to Italy. France is also a taker with \$16,369 to her credit.

The unusual extent of the advance exhibited by January of the recent year over its predecessor of 1905, may be appreciated from the fact that the increase shown by the period of seven months ending January, 1906, or \$1,438,600, over the corresponding period of the year previous, \$1,122,638, represents but little more than double the gain of this one month. For 1904 the total for the period of seven months, ending with January, was \$1,014,124. The total for the month of January, 1905, was \$196,144, and for 1906, \$297,694, and the latter also represents a very substantial increase over the total of \$196,645 of the month just preceding it.

The table in detail is as follows:

Exported to—	Jan. 7 mos end'g 1906	Jan. 1906
United Kingdom	\$114,991	\$412,928
France	16,369	113,696
Germany	4,806	30,824
Italy	20,005	62,094
Other Europe	4,448	66,597
British North America	22,107	250,116
Mexico	30,935	145,179
West Indies & Bermuda	40,461	104,893
South America	3,588	41,490
British East Indies	4,147	24,149
British Australasia	32,669	117,365
Other Asia & Oceania	2,000	29,746
Africa	1,168	20,180
Other countries		10,289
Total	\$297,694	\$1,438,600

Miles Gets the Coliseum Again.

S. A. Miles, manager of the National Association of Automobile Manufacturers, who personally held the option on the Chicago Coliseum, in which the Western show has been held during the past several years, has renewed the lease of the building for automobile display purposes for a term of three years. As yet, however, his arrangement with the N. A. A. M., whereby that organization has nominally at least held the show and shared the profits, has not been renewed.

Cramer, not Sukernek, got Verdict.

By a curious and unfortunate reversal of the facts in the case, it was stated in the Motor World last week that in the suit of John A. Cramer, the Buffalo dealer, against Louis Sukernek, of Emporium, Pa., for the balance of \$500 due on a car purchased by the latter, the jury rendered a verdict in favor of the defendant when the very contrary was the case. The "twelve good men and true" required but twelve minutes in which to decide in Cramer's favor. Sukernek claimed that the car would not climb the hills in his vicinity, although one of Cramer's workmen went to Emporium and demonstrated that this was not the case. At the end of three months, however, the man with the queer name shipped the car back to the Buffalo dealer, who refused to receive it, and who promptly instituted suit for the \$500 still due him and the jury, as stated, lost no time in deciding in his favor.

Highlands and Gould on Shawmut Staff.

John Highlands, once famous as a Harvard athlete, has been appointed general manager of the Shawmut Motor Co., which acquired the Phelps plant in Stoneham, Mass., and which is now building a 35-40 horsepower touring car listing at \$3,500. George T. Gould, Jr., has been appointed Eastern sales manager of the concern with headquarters in New York at 1634 Broadway.

Winton to Open in Pittsburg.

A Pittsburg branch will soon be opened by the Winton Motor Carriage Co., which will make the company's seventh branch establishment. Earl Kiser, who lost a leg when he went through a fence at the Cleveland, Ohio, race meet, August 12th, last, will be the manager, assisted by John S. Johnson, another former luminary of the bicycle track.

Eagle to Alight in Rahway.

The Eagle Automobile Co., which was incorporated at Rahway, N. J., last week, has purchased the Thorp property on St. Georges avenue, that city. A factory will be erected at once. Frank C. Vanderwater, Edwin Vanderwater, A. Gibbey Spencer, George W. Loft and Henry S. Griffin, all of Rahway, are named as the incorporators.

Goes from Apperson to Autocar.

Fred C. Brand has resigned his position as manager of the Chicago branch of the Apperson Bros' Automobile Co., to become assistant general sales manager of the Autocar Co., of Ardmore, Pa. His successor in the Chicago office has not yet been named.

E. H. Broadwell, vice-president of the Fisk Rubber Co., has gone to Bermuda for a short sojourn. He has been in ill health of late and the visit is made for recuperative purposes.

HERE'S MORE JERSEY JUSTICE

Court Limits Supply of Gasolene and Gives Neighbors Right to Inspect Garage.

If the decree of Vice Chancellor Garrison handed down last last week, restraining Richard J. Nelson and James Ray from "storing, keeping and using gasolene" in their garage on the Hudson County Boulevard, Jersey City, N. J., is to become established as a precedent, it will lie in the power of every neighboring resident of a garage in that State to not only limit the supply of gasolene to microscopic proportions and to lay down the law to the garageman, but at any time enter and "nose around" the premises to see that the law is being obeyed. For the injunction accords permission to the successful petitioners for an injunction "to inspect, at all proper times, the gasolene tanks of the automobiles about to enter the said building, or actually within the same, for the purpose of ascertaining the amount of gasolene therein." It does a great deal more; in so many words, it practically annuls that provision of the constitution which protects private rights against invasion by restricting the right of search to those armed with a search warrant which will only issue upon the establishment of at least a prima facie case. Anyone who happens to have a grudge against a garage keeper or who objects to its presence in the neighborhood, may put an end to the sale of gasolene on the premises, merely by going into court and praying for an injunction.

In substance the decree itself follows:

It is directed to the defendants, their attorneys, agents and servants, enjoining them from "storing, keeping, permitting and using gasolene inside of the building occupied by them as a garage until the further order of this court in the premises; provided, however, that until the further order of this court in the premises the said defendants above named may permit sufficient gasolene to remain in the automobiles about to enter the building under their own power; said amount of gasolene so permitted to remain in each said automobiles shall not exceed one-half of a pint.

"And it is further ordered as a concession in favor of the defendants contained in the above proviso, that the complainants shall be permitted from time to time and at all proper times to inspect the gasolene tanks of the automobiles about to enter the said building, or actually within the same, for the purpose of ascertaining the amount of gasolene therein."

Rubay Establishes Boston Branch.

Leon Rubay, the New York dealer in imported supplies, is establishing a branch house in Boston. He has leased the old store of the Fisk Rubber Co., at 242 Columbus avenue, for the purpose.



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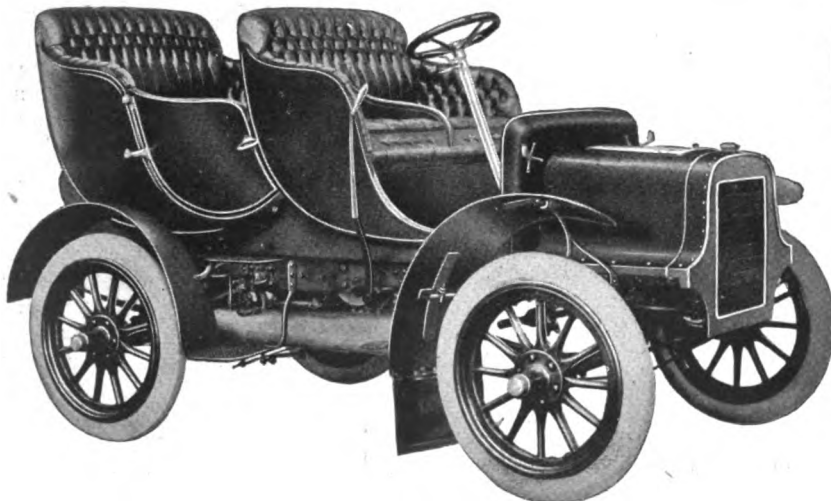
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SYRACUSE: 423 S. Clinton St.	BUFFALO: 893 Main St.
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F. L. HALLACK."

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Entered as second-class matter at the New York, N. Y., Post Office, November, 1900.

NEW YORK, MARCH 8, 1906.

Flexibility and Starting.

When the application of the gasoline motor to the field of motor propulsion was first proposed, two apparently insurmountable drawbacks militated so strongly against its usefulness in the work that for a long time it was considered unfitted for the purpose, and only its compactness and comparative simplicity served to lure the makers of the earlier cars on to attack the problems incident to its perfection and adaptation to the then little understood needs of the motor car. These two drawbacks were its inflexibility, its best work being developed only within a comparatively limited speed range, and its inability to carry a load at low speeds necessitating the use of more or less complex mechanism of transmission; and the fact that it could only be started after a portion of its cycle of operation had been performed artificially, and usually only after a tedious period of persuasive labor at the starting crank.

Despite the forces of these drawbacks, and the lesser difficulties attendant upon

the development of any new form of mechanism, the gasoline motor has come into its own and has assumed a degree of usefulness which is far beyond the wildest hopes of its progenitors, no matter how extravagant may have been their dreams. Nevertheless, these two factors still interfere greatly with its usefulness and will continue to do so until a considerable further modification of its organism has been made possible by the study of years and the concentration of many able minds.

The solution of the first has been carried to its present status by the two-fold development of the motor itself, and the evolution of the transmission gearing which, though admittedly crude from the mechanical standpoint, yet serves its purposes most admirably. Thus by increasing by a considerable amount the effective speed range of the motor, and at the same time providing the transmission with a succession of steps, each giving a different ratio of speed from each of the others, it has been made possible to alter the speed of the car from a very reasonable minimum up to a maximum which is determined solely by the power of the motor. And although the proper manipulation of motor and gearing which is essential to the smoothest action and the most economical utilization of the motor's power, requires a considerable degree of skill and understanding, still this is by no means sufficiently great to make it prohibitive to the untechnical and unmechanical user, or to militate against the use of the gas engine to a perfectly general and very wide extent.

On the other hand, the methods of starting are for the most part unchanged, and the operator still cranks the motor before climbing into his seat in the majority of cars, just as his predecessor did ten or twelve years ago when the gasoline machine had first begun to assume encouraging proportions. True enough, most motors of the multi-cylinder type can be relied upon to start "on compression" for a part of the time, and the degree of certainty of their starting by the mere manipulation of the ignition increases in just proportion to the number of cylinders in use. Just now when the tide of favor is surging toward the use of an increased number of cylinders, the improved balance of the average motor, and its likelihood of self-starting a good deal of the time tends to lessen the prejudice against cranking.

Still the evil is just as great as it ever was, even though its effect be less felt, and

the time is very evidently ripe for the inventor and the designer who is of an inventive turn of mind, to turn their attention to this problem and solve it in a simple and practical manner. Numerous efforts have been made already to solve it. They vary in principle throughout the range of possibility. Some of them possess features which recommend them to the attention of the user, and some are but the crudest of makeshifts. Yet all of them will have served a purpose in pioneering the way for some system or systems which shall in time have become sufficiently developed so that they will be deserving of regular use on all machines.

Doubtless, the show season of 1907 will be marked largely by the presence of the self-starting feature on many machines. Much that is old and much that is new will be revealed. But now is the time to sow the seed which is to be productive of the harvest then, and the manufacturer and designer should bestir themselves in canvassing the problem before it is too late to work it out successfully.

Concerning the Carburetter.

Not since the surface carburetter finally gave way before the spray nozzle type and the latter came into general use, has such uniformity of design in this essential of the motive power been noticeable. With the exception of a number of examples so small as to form but a negligible fraction of the total, a recapitulation of the details embodied in practically all the carburetters now extant would reveal such a startling sameness that the conclusion that the designers had all taken a common starting point would be inevitable. And, to a certain extent, this is true. That is, all have come to appreciate the fact that there are certain basic principles of carburettion which must be embodied in the apparatus regardless of the form of the latter assumes or the manner of their application. Requisite proportions of air and liquid as well as the amount of gas to be produced by given quantities of the former, have been more definitely approximated. Given such data as a starting point observation of a larger number of carburetters now on the market, whether as stock parts made by specialists, or the exclusive product of builders who restrict their use to their own cars, brings home the fact quite forcibly that but slight and, in many cases, insignificant deviation in detail marks those that differ perceptibly from the many.

As a common ground from which to start all have adopted the float-feed with little or no variation, for in its present generally accepted form it is not capable of a great deal—a mere matter of detail as to whether fuel should be admitted from above and the inlet closed by the float itself, or from below, through the medium of weights and levers apparently sufficing to sum up all that can be said on this score. A radical divergence of opinion may be noted on the part of designers on the subject of the necessity of water jacketing the carburettor to insure its proper operation at low temperatures, but those who now hold the affirmative of this proposition are greatly in the minority—so small in number, in fact, as to hardly merit any more than the classification of being exceptions to the general rule. Air regulation has always formed the difficult feature of the problem, as it was the stumbling block of the early investigators. "Not enough air" summed up the cause of the greater part of early carburettor trouble, but it was some time before it was realized. It puzzled the most erudite in gasoline engine lore as to why the carburettor with which an engine ran beautifully at times would not be productive of even a cough at others; why sudden stoppages were so frequent. In the light of present knowledge it appears absurd that it should not have been realized at the time that overspeeding of the engine where no provision for increased air supply was made could only result in drawing liquid fuel into the cylinder and sooner or later flooding it until a stop occurred.

Just how best to secure the necessary increased amount of air at the proper time and in quantities proportionate to the needs of the motor as gauged by the amount of fuel being drawn through the nozzle represented the problem that has since been solved to a great extent by the evolution of the automatic carburettor. Not that finality has been attained, by any means, but a long step toward that degree of flexibility that has ever been the aim of the gasoline engine designers was taken with the creation of the present day adjunct as represented by the best types of automatic carburettors. It must be generally conceded that to the latter more than to any one other item of improvement that has been brought about in the past two years, is due to the wonderful advance made in the control of the motor.

Extreme variation of design was rather to have been looked for in the creation of

appliances for automatically supplying the constantly varying extra air supply made necessary by the ever changing speed of the motor, but a review of the methods of accomplishing this would almost be conducive of the belief that all, or at least a majority, had sprung from a common origin. Many have taken advantage of the partial vacuum created in the body of carburettors by the suction of the piston of the engine to employ spring controlled valves actuated by this force which increases with the speed of the engine and is always directly proportionate to it. This, in fact, is quite generally used.

Up to a certain point, carburettor development abroad has proceeded along the same lines; so far as air regulation is concerned, the problem has been dealt with in much the same manner, but foreign designers and the French builders of prominence in particular, have gone a step further by holding that the supply of fuel as well as air should be regulated automatically. Acting upon this theory the multiple spray type of carburettor has been evolved and it is so generally considered as marking an advance over its predecessors that its use will be general on leading foreign cars for 1906. In this form one spray nozzle and a single air inlet take care of the normal requirements of the engine up to a certain speed when the added suction brings into play additional nozzles—usually accompanied by that of its air port, so that the supply of each increases proportionately. Whether this does indeed mark an advance that will sooner or later cause the single nozzle type to disappear remains to be seen, but, however that may be, it is easy to perceive in the almost startling similarity of the great majority of carburettors now extant, a general recognition of the basic principles governing carburettors and with these firmly established half the battle is won.

Prejudice of the Judiciary.

Even the judiciary in the State across the river that would tax the automobile and everything connected with it out of existence, seems to have fallen a prey to the same insidious microbe that has been afflicting its legislators. It seems unfortunate that one who has been elevated to a position that is universally regarded as enabling its possessor to look upon things impartially and with due consideration of the rights of all concerned, should be swayed by prejudice to the extent of ignor-

ing a matter of constitutional liberty, as did Vice Chancellor Garrison, of New Jersey.

It is bad enough to issue an injunction practically restraining the defendants from using gasoline in their business, but in also permitting the successful petitioner to go upon the garage keeper's property "at all reasonable times" in order to inspect the garage and the cars stored therein, to ascertain whether the decree was being obeyed or not, the chancellor violated one of the most sacred privileges guaranteed by the constitution. If this may be done with impunity at the instance of every disgruntled neighbor of a garage, then would Russia be outdone by Jersey with a vengeance. It is unfortunate for two reasons, in that it shows a failure of equity in this instance, and because it is one of those things that serve to foment and keep alive a spirit that is bound to disappear of its own accord in due course, unless continually fostered by such occurrences as this, which are given an amount of credence by the unthinking public, commensurate with the high source of their origin.

Powerful imaginations are usually necessary attributes of press agents. One of the fraternity has caused it to be made known quite generally in the foreign press that of the cars exhibited at the New York shows, a large majority were fitted with German tires, which will prove startling news to the American trade and public. But the press agent is very specific. He gives the exact number of cars so equipped. The fact that the total is greater than the number of cars staged is a mere trifle that cuts no figure.

It is written that a gasoline motor taken from a car which was two years old, recently was found to develop something like eight horsepower more than when it was originally tested and put into service. Granted only that the same mysterious influences could be made to work in the entire car and it would seem that a man could buy a runabout to-day for his little son, and have it grow up with him and develop into a "roaring forty" by the time he attained his majority.

Col. Sellers must have found the past week inexpressibly dull. There was not a single announcement of the inauguration of a publication to be devoted to commercial motor vehicles. The previous week only five of them were announced.

BUFFALO SHOW BEGINS WELL

Hall Well Filled and Tastefully Decorated
—Exhibitors Who are in Evidence.

This week in Convention Hall, Buffalo, N. Y., the sixth of the local shows to be given this year is holding forth, under the management of the Automobile Dealers' Association of that city. It is, of course, a purely local exhibition, although two large manufacturers—the George N. Pierce Co. and the E. R. Thomas Motor Co., whose plants are in the lake city, are personally exhibiting. Other out-of-town exhibitors are the Badger Brass Manufacturing Co., Kenosha, Wis.; Gray & Davis, Amesbury, Mass., and Edmunds & Jones, Detroit, Mich., all of whose lamps are well known; Charles E. Miller, the New York sundries man; Hartford Suspension Co., New York; Warner Instrument Co., Beloit, Wis., and the American District Steam Co., of Lockport, N. Y.

The decorations are simple, but pleasing to the eye. The ceilings are covered with yellow and white bunting, and the floor by the regulation green matting. The signs consist of gold letters on white backgrounds, which gives a harmonious effect. From the center of the ceiling a mammoth electric chandelier, composed of hundreds of incandescent bulbs, is suspended.

The exhibitors and the wares they are displaying are as follows:

Buffalo Auto Station Co.; Clincher Tire & Rubber Co., Swinehart tires; Brunn's Carriage Manufactory, Stevens-Duryea cars; MacNaughton & Dubroy, motors; Glouster Cycle Co., motorcycles; Buffalo Carburetter Co., Buffalo carburetters; Thomas Spring & Gear Co.; Buffalo Auto Truck & Motor Co., trucks; Knox Automobile Co., Knox cars; Ford Motor Co., Ford cars; George N. Pierce Co., Pierce cars; Centaur Motor Co., Peerless, Winton, Cadillac and Northern cars; E. R. Thomas Motor Co., Thomas cars; J. A. Cramer, Premier, Stoddard-Dayton and Mitchell cars; Buffalo Automobile Exchange, Haynes and Franklin cars; Jaynes Automobile Co., Olds, Pope-Hartford, Pope-Toledo, Buick and Locomobile cars; Poppenberg Automobile Co., Rambler, Marion and Corbin cars; P. W. Eigner; Buffalo Motor Car Co., Hotchkiss and Autocar; Walter Hayes, White cars; Alex. Weller; Babcock Electric Carriage Co., Babcock cars; Palace Motor Car Co.; O. K. Machine Works, supplies; Kane, Champlin Co., Reo cars; American District Steam Co., Lockport, N. Y.; Dai H. Lewis, Route books; Gray & Davis, Amesbury, Mass., lamps; Badger Brass Mfg. Co., Kenosha, Wis., Solar lamps; Buffalo Gasolene Motor Co., marine engines; Kelsey Co., supplies; Charles E. Miller, New York City, supplies; National Battery Co., batteries; Warner Instrument Co., Beloit, Wis., Warner speed indicators; Hartford Suspension Co.,

New York City, Truffault-Hartford suspensions; Weed Chain Tire Grip Co., Weed chain grips and Lashar speed indicator; Edmunds & Jones Mfg. Co., Detroit, Mich., E. & J. lamps; Thomas Auto-Bi Co., Thomas motorcycles; Neal, Clark & Neal Co., Indian motorcycles; Cleveland Cycle & Auto Co.; American Motor Truck Co., American trucks; Meadows & Hafer; Clarence M. Rodgers, Rapid trucks.

Napier Seeks to Enjoin Strikers.

An ad interim injunction against the Boston local of the International Association of Machinists, its officers and a number of its members, was granted by Judge Fox of superior court last week to the Napier Motor Co., as a result of labor troubles growing out of differences arising from the maintenance of an "open shop" at the factory of the petitioner in Jamaica Plain, Mass. It will be remembered that many of the employees went out on strike some time ago, giving as their reason dissatisfaction with methods introduced by an English superintendent.

The company asks that the union be restrained from patrolling the streets in the vicinity of the company's factory; from interfering with the employees of the company as they come and go to their work, from using indecent language and opprobrious epithets; from assaulting, delaying or threatening the employees and from persuading, or attempting to persuade them to leave the plaintiff's employ.

The plaintiff alleges that members of the union in the employ of the company, interfered with the non-union employees of the company, by threats and violence, and were for this reason discharged. The union, it is claimed, demanded their reinstatement, and when the demand was refused, ordered a strike.

Sixty of the 200 employees went out, and, the plaintiff alleges, have been picketing the premises. The plaintiff says that it has always maintained an open shop, and has steadfastly refused to make membership of a labor union an essential to obtaining a position in the Napier factory.

An order was issued, returnable to-day, Thursday, March 8th.

Brooklyn Man Claims a Gas Turbine.

Herman Pederson, a Brooklynite, arises to state that he has discovered, or rather invented, the practical internal combustion turbine. Gasolene is the fuel and it will be exploded in conjunction with air, just as it is in the cylinder of the ordinary motor. His first turbine motor is 3 feet long by 8 inches wide and 7 inches high. He claims it will develop 15 horsepower at 4,000 revolutions per minute, four explosions to the revolution, but does not hesitate to explain how the 16,000 explosions per minute are to be obtained, adding that he can build a turbine motor that will develop 30 horsepower on a total weight of 50 pounds.

BETTER THAN GASOLENE

Germans Discover a New Fuel for Which
they Claim Great Virtues.

"Homogenal" is the name given to a new variety of gas that is said to be unequalled for power purposes. It is the result of the discovery that benzol of a high specific gravity, 90° or over, may be gasified, and has been given this title owing to its homogenous qualities. The mixture used in its production consists of heavy benzol and peat or similar oil. In addition to being far cleaner as well as cheaper, the new gas possesses the added advantages of being non-poisonous and non-freezing.

No structural alterations are entailed in existing power for the installation of a gas producer for handling this gas, and the latter is said to dispense with the necessity of cooling water and to work without any waste of gas. In addition, it is claimed not to damage the motor and is produced cold and free from soot. Its comparative efficiency is said to be 50 per cent. in excess of that of warm producer gas while its cost is greatly less.

Just what proportion the latter bears to the cost of existing fuels may best be appreciated from the fact that one kilo. (2½ lbs.) of benzine at 33 pfennigs (7 cents) will produce 2½ cubic meters of gas, whereas the same weight of homogenal gas at a cost of 3 cents, is equivalent to 6 cubic meters. The efficiency of benzol itself will be clear from experiments with a 5 horsepower light car which was run at the rate of 15 miles an hour for sixty minutes with an expenditure of 1.05 kilos. of unwashed benzol at a cost of 6 cents, compared with 16 cents for the same amount of benzine.

When using unwashed benzol the exhaust is said to be invisible, and with washed benzol, entirely odorless. With the former there is a slight but not objectionable smell.

Ford Turns to Traction Engines.

Rumor has it that Henry Ford, of the Ford Motor Company, is planning a gasolene-driven traction engine. In general, its design is said to be that of its steam prototype and is to be of 30 to 35 horsepower, but further than this, nothing is known. Mr. Ford thinks such a vehicle will in time displace the motor truck for heavy hauling as it can pull any number of trailers, while in the rural districts its usefulness would be unlimited.

Post Once More on the Road.

Wallace B. Post, the veteran and widely known traveler for the Billings & Spencer Co., is again able to be about after a painful operation on his eyes. His affliction was doubly sad, as during his confinement his wife, an almost life-long invalid, passed away.

BOSTON'S BIG SHOW READY

Nearly Three Hundred Exhibitors on the List—Decorative Scheme will be Original.

If the Boston show, which opens on Saturday next, was being held in Chicago, there is no telling what term the Chicagoans would use to describe it, since the Westerners figured that they have held the only national show, and the only one that required two buildings to compass it. This year, although the more sedate Bostonians are employing two buildings, Mechanics Building and Symphony Hall, for their show, and though the number of exhibitors compares favorably with any show ever held either in New York or Chicago, and the decorations are to be both original and in good taste, no great bluster has marked the preliminary arrangements. Its absence, however, does not disguise the fact that the Boston show is a great, big, fine, large function. It would be slanderous to term it a local show. It is immensely larger and in every way far beyond the exhibitions that that term is employed to characterize. Each year has seen it expand, and this year, as already intimated, it will be larger than ever before.

The galleries in Mechanics Building, which were previously given over to the spectators, are this year being used for exhibits, and, despite this added space, the lease of Symphony Hall, a block away, was made necessary in order that the overflow might be taken care of. In all, there will be 280 exhibitors, of whom 74 will stage 97 different makes of cars, which gives an idea of the importance of the show.

It was Boston that set the fashion in uniformity of show decorations and this year its embellishment is to depart from the usual order. Two Grand Hall pergolas are to constitute the striking feature. It will require the use of hundreds of marbelized columns from which grape vines will depend and in which vines, grapes and myriad electric lights concealed in the leaves will gleam.

Practically every car of note will be in evidence, and at least two new cars will be shown for the first time, the Page and the Shawmut. The following is the list of the cars that will be displayed:

Peerless Motor Car Co., Boston, Peerless cars.

Bangs, A. R., Boston, Franklin and Darracq cars.

Dunham, George J., Boston, Royal Tourist cars.

Winton Motor Carriage Co., Boston, Winton Touring cars.

White Sewing Machine Co., Boston, White Touring cars.

Reed-Underhill Co., Boston, Knox and Stearns Touring cars and Knox Trucks.

Moore & Smith, Boston, Autocars.

Napier Co., of America; Boston, Napier Touring cars.

Fuller, A. T., Boston, Packard and Cadillac Touring cars.

Boston Automobile Exchange, Boston, Crawford Touring cars and Columbus Electrics.

Pope Manufacturing Co., Boston, Pope-Toledo, Pope-Hartford, Pope-Tribune and Pope-Waverly cars and Commercial vehicles.

Randliff Motor Car Co., Boston, Panhard, Stoddard-Dayton, Frayer-Miller and Ardseley cars.

Skinner, K. A., Boston, DeDion Bouton Touring cars.

Maguire, J. W. Co., Boston, Pierce Touring cars, and Baker Electrics.

Brown, George M., Boston, Apperson Touring cars.

Mills Kennedy Co., The, Boston, Welch Touring cars.

Boston Motor Co., Boston, Acme and Merkel cars.

Jenkins & Sheldon, Boston, Mitchell Touring cars.

Kimball Co., E. T., Boston, Corbin Touring cars.

Blake & Co., E. P., Boston, Jackson Touring cars.

Ford Motor Car Co., Boston, Ford cars.

Breed, E. S., Boston, Haynes and Elmore Touring cars.

Butler Motor Car Co., Boston, Cleveland, Pierce-Racine, and Richard-Brasier Touring cars.

Sturtevant Mill Co., Boston, Sturtevant Touring cars.

Jeffery & Co., Thos B., Boston, Rambler Touring cars.

Fosdick Co., Harry, Boston, F. I. A. T. and Studebaker Touring cars.

Locomobile Co., of America, Boston, Locomobile Touring cars.

Columbia Motor Vehicle Co., Boston, Columbia Gasolene and Electric cars.

Linscott Motor Co., Boston, National and Reo Touring cars.

Morrison-Tyler Motor Car Co., Boston, Maxwell, Ranier and Marion Touring cars.

Essex Motor Car Co., Boston, Essex Steam cars.

Wayne Automobile Co., Boston, Wayne Touring cars.

Baker-Comerais Motor Car Co., Boston, Premier cars.

Berkshire Automobile Co., Berkshire, Mass., Berkshire Touring cars.

Henshaw, C. S., Boston, Thomas Flyer Touring cars.

Matheson Motor Car Co., Wilkes-Barre, Pa., Matheson Touring cars.

Adams-Sutton Motor Co., Boston, Oldsmobile Touring cars and Commercial vehicles.

Buick Auto Agency, Boston, Buick Touring cars.

Waltham Manufacturing Co., Waltham, Mass., Waltham-Orient cars.

Page Motor Vehicle Co., Providence, R. I., Page cars.

Leach, J. N., Boston, Melrose cars.

Knox Motor Truck Co., Springfield, Mass., Atlas trucks.

Vehicle Equipment Co., Long Island, N. Y.,

Commercial Electric vehicles.

Butler Motor Car Co., Boston, Rapid Commercial vehicles.

Snow, John L., Boston, Peerless Touring cars.

Saunders, C. H., Melrose, Mass., Moline Touring cars.

Coburn, A. J., Boston, Upton Touring cars and Constantini Electrics.

Toppan, A. W., Boston, Standard Touring cars.

Hub Automobile Exchange, Dorchester, Mass.

Ross, Louis S., Newtonville, Mass., Steam cars.

Coleman, H. P., Boston, Duryea Touring cars.

Corwin Manufacturing Co., Peabody, Mass., Gasaulec Touring cars.

Wing & Co., F. E., Boston, Marmon cars.

Imperial Auto Co., Boston, Aerocar, Dolson, Argus, St. Louis and Martini cars.

St. Louis Motor Car Co., Peoria, Ill., St. Louis cars.

Grout Bros' Automobile Co., Orange, Mass., Grout Gasolene cars.

American Motor Car Co., Boston, American cars.

Duquesne Co., The, New York City, Duquesne cars.

Stanley Motor Car Co., Newton, Mass., Stanley Steam cars.

Babcock Electric Carriage Co., Buffalo, N. Y., Babcock Electric cars.

Blomstrom Motor Co., C. H., Detroit, Mich., Queen cars.

Shawmut Motor Co., Boston, Shawmut cars.

Stratton Motor Co., Boston, American Mercedes Touring cars.

Johnson Service Co., Milwaukee, Wis., Johnson Steam cars.

Mors Automobile Co., Boston, Mors Touring cars.

Mercedes Import Co., New York City, Mercedes Touring cars.

English Daimler Co., New York City, English Daimler, C. G. V., and Decauville cars.

Northern Automobile Agency, Boston, Northern Touring cars.

Crown Motor Co., Boston, Glide cars.

Eisenhuth Horseless Vehicle Co., Middletown, Conn., Compound cars.

Iroquois Motor Car Co., Seneca Falls, N. Y., Iroquois cars.

Nichols & Co., D. P., Boston, Frayer-Miller and the Clark Steam cars.

Detroit Auto Vehicle Co., Detroit, Mich., Crown delivery wagons.

Harrison Wagon Co., Grand Rapids, Mich., Harrison Touring cars.

Practically all of the standard accessories will be shown, likewise a formidable array of motor boats.

The Automobile Dealers' Association of Baltimore, Md., finally decided to hold their show from March 31 to April 7, instead of from April 2, as was at first intended. The display of new models will be in the spacious Mount Royal Garage.

CARS FOR COMMERCE

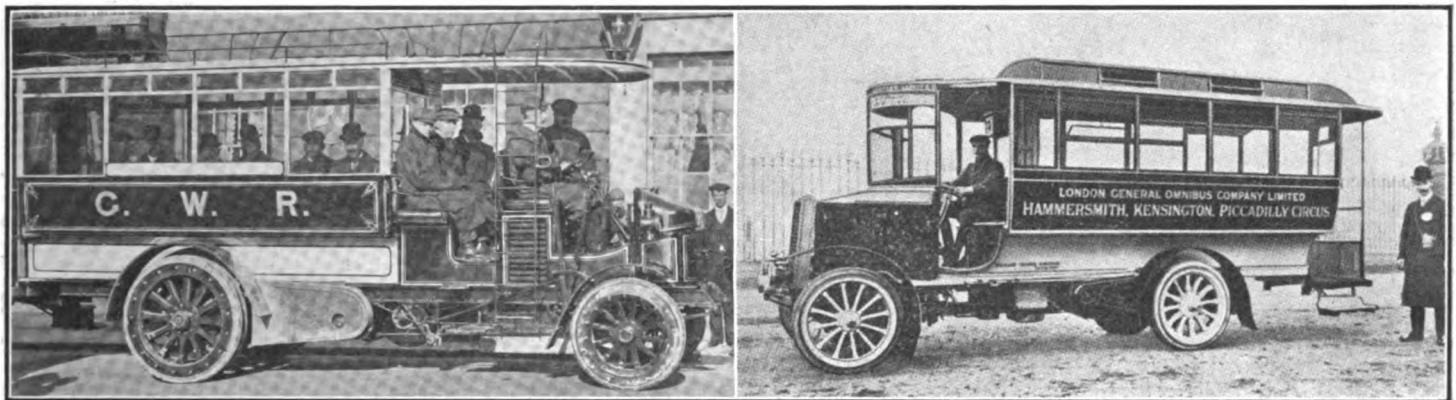
How They have Developed Abroad and the Types in Use—London's Many Motor 'Busses and Cabs.

London, Feb. 26.—While the commercial branch of the motor car industry in America may be just beginning to assume tangible proportions, its interests in Great Britain are in a far more substantial condition. The obvious reason for this is that the heavy traction machine towing its load in two or more trailers, and the heavy steam lorry, had come into fairly general use here even before the motor vehicle had begun to be taken seriously in America, and that the present commercial types are a legitimate

increases in favor, it must gradually oust the municipal tramway schemes and thereby reduce municipal expenditure, and likewise the pickings obtained from contracts upon which many of the energetic councillors exist.

During the past year the motor 'bus especially has made great headway in London; the main difficulty has been to secure enough vehicles. Most of the great London omnibus companies have for months had a considerable number of motor vehicles on order, but it is only quite recently that these have been delivered in sufficient numbers to make their presence really felt. Even at the present time it is clear that some two or three years must elapse before the supply can hope to bear any adequate proportion to the demand. Altogether, apart from the fact that the old-established

strong combination. It is highly probable that, in the end, chain transmission of the type shown will be superseded by some form of "live" axle, just as the similar chain transmission has gradually given way to the more direct type for ordinary cars. The very latest type of 'bus manufactured by Messrs. Thornycroft is equipped with a four-cylinder engine having a $4\frac{1}{2}$ -inch bore and a 5-inch stroke, the power being developed at 900 revolutions per minute. The cylinders are all separately cast, and the water jackets are so designed that there are no sharp corners where dead water may lie, so that the circulation is extremely efficient. This is a most important consideration for 'busses, because traffic driving means continually stopping and frequently a good deal of work upon the lowest gear. Like most of the 'bus engines, the Thorny-



Motor Busses in Use in London and Suburbs.

outgrowth of these rather than an offshoot of the pleasure cars, as are the majority of the corresponding types constructed in America.

Indeed, one of the most remarkable features of the British motor industry is the fact that far more attention has been paid to the commercial vehicle than has yet been devoted to the subject either in America or on the Continent. Thus, while to the French must be accorded the credit of having introduced the mechanically propelled vehicle in its pleasure form, John Bull must be given due allowance for the development of the commercial types. This development has been all too slow, but, although it must be admitted that the authorities have done their utmost to thwart the motor movement in the interests of the horse breeders and agriculturists who rule Parliament, and are even more likely to do so than ever during the next year or so, the utility of the commercial machine is too obvious for such vehicles to suffer materially, even by Parliamentary opposition, for already the public feel that there is a great future for mechanical traction. It is rather curious that the great opponents of the commercial motor are the people who, to serve their own ends, become members of our municipal councils. One of the reasons for the opposition is that, as the motor omnibus

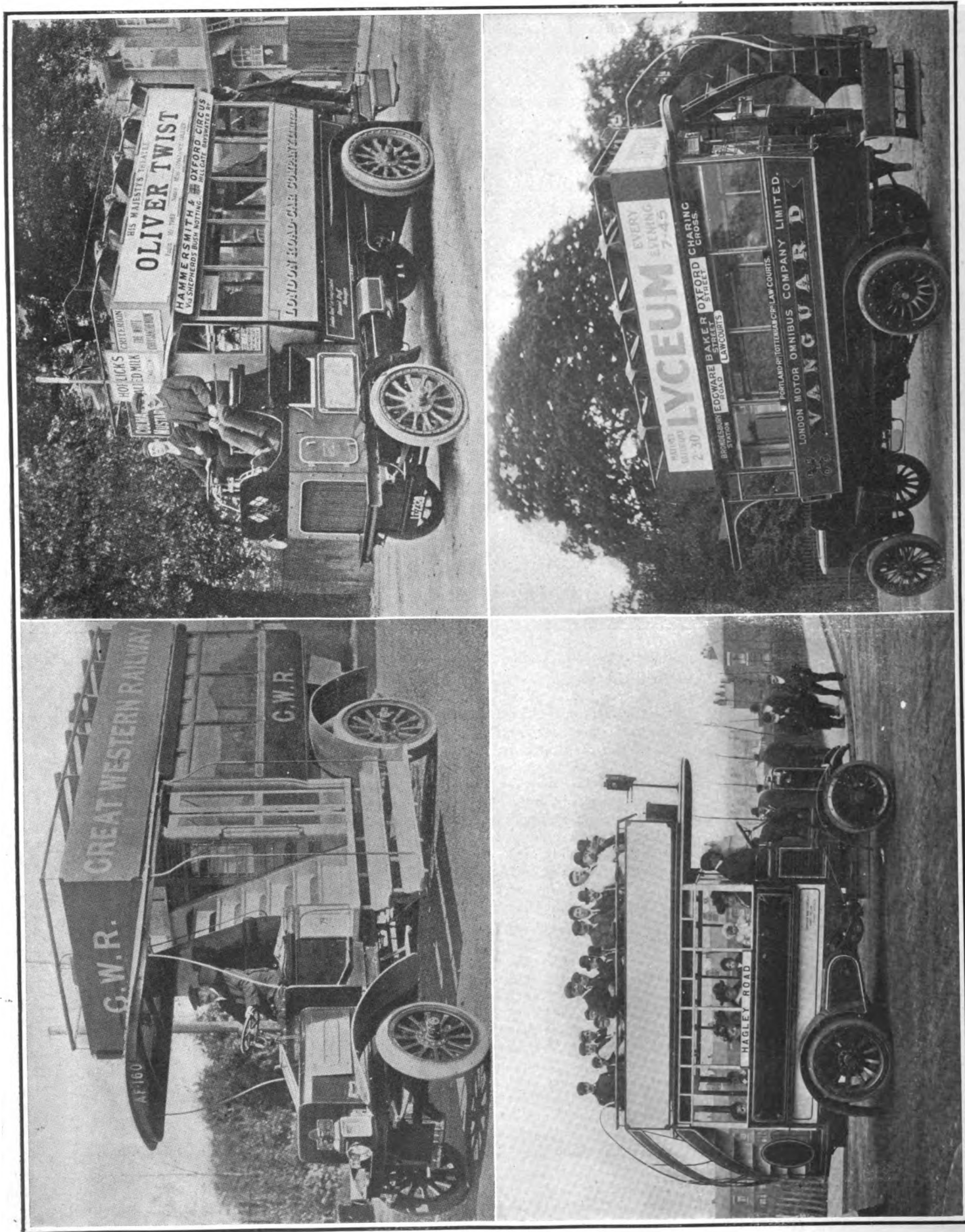
'bus companies have decided to adopt motor traction at the earliest possible moment, numerous special companies have come into existence. In fact, to the London Motor Omnibus Co., which runs the Vanguard 'busses, must be given the credit of really seriously introducing such vehicles to the public, although Messrs. Tilling, who have for some time past run a partial motor service, should also receive a certain amount of credit. The Vanguard 'bus is specially built for the company by Messrs. Thornycroft, and is entirely of British manufacture. It is a double-decked vehicle, fitted with a 24 horsepower gasoline engine, and designed to carry 34 passengers. Like practically all the motor 'busses running in London, the driving wheels are fitted with twin tires of solid rubber, and it may be noted that these have proved successful, the liability to side-slip being very materially reduced. Four speeds and a reverse are provided, but in this connection it may be noted that a great many of the motor 'busses now running have only two speeds, and for all ordinary work it is found that this is sufficient.

In the chassis employed for this type of 'bus, the frame is constructed of the best channel steel, and added to this is a supplementary under-frame to which the engine and gear-box are bolted. It forms a very

craft is provided with low tension magneto ignition, but it is probable in a comparatively short time there will be a reversion to the high tension magneto system.

Another type of vehicle used by the Vanguard Co. is the "Milnes-Daimler" and this again follows upon the usual lines. On some of the 'busses chain transmission is not employed, but the countershaft carries toothed wheels engaging with internal teeth on the road wheels. This system appears to work satisfactorily, but the fact that the gearing is necessarily unprotected is somewhat against the method in the case of a vehicle which has to run in all weather and receive comparatively little attention.

Another recently formed company is the London & District Motor 'Bus Co., which is running its vehicles under the general name of the "Arrow." Several types are being used by the company, but one of the most comfortable and completely up-to-date is that shown in the accompanying illustration. This vehicle has a very long wheel-base and runs very "sweetly." For town use the 'bus is fitted with a motor of 22 horsepower, but for country work Messrs. Straker & Squire, who are the manufacturers, employ an engine of 35 horsepower. This is sufficient to take the vehicle practically anywhere with a full load. The half-speed shaft of the motor is



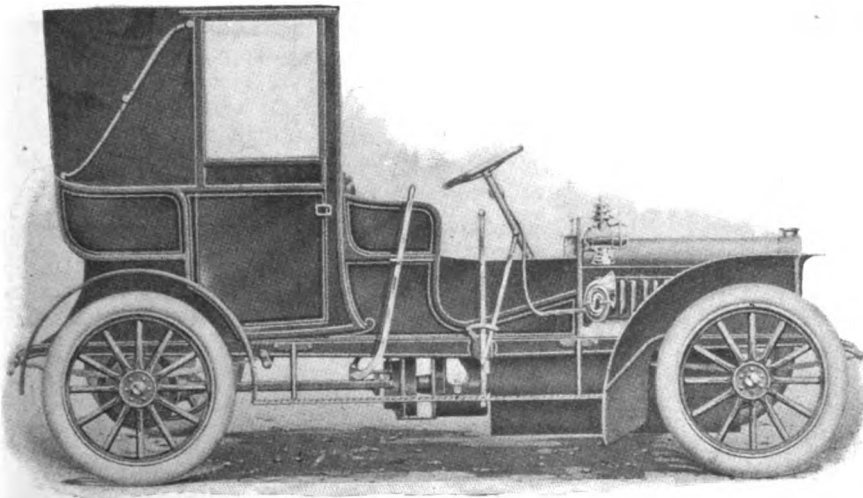
Types of Motor Busses in Use in London.

placed above the cylinders, an arrangement which enables both the exhaust and inlet valves to be operated by the same shaft. Although the stroke is not extremely long, the cylinders are longer than usual, as the pistons have a length of approximately two diameters. This should materially add to the wearing powers of the engine. This 'bus is equipped with four speeds and re-

railway 'bus with luggage roof belongs to the Great Western Railway, which has done more to develop the motor omnibus for feeding country stations than any other railway company in this country. This particular 'bus has proved of great utility, and its carrying capacity is really enormous. The same railway company have adopted a number of purely delivery vans, also made

experiment of taking them through the city instead of confining the routes to the West End. Unfortunately a good deal of prejudice exists in the minds of the police authorities and much opposition has been raised, but at length the company has overcome all obstacles and now it is possible to travel by motor 'bus completely through the city. The police, however, are still endeavoring to hamper the movement as much as possible by limiting the number of vehicles allowed. The absurdity of the objections raised may well be illustrated by the statement that, should a motor 'bus break down, it would "obstruct traffic," but it is clear that it could not possibly create more obstruction than an ordinary horse-drawn 'bus when the horses fall down. The Clarkson 'busses are supplied to the London General Co., and to the Road Car Co., but, so far, steam 'busses are hardly so popular as those of the gasoline type.

Argyll Motors, Ltd., are now constructing a number of motor 'busses both in the single and double-deck type. One of the former which has proved a most comfortable vehicle, has a long wheel-base and steers very steadily. It is arranged to seat 16 passengers, and is made with 20, 24 or 30 horsepower engines, according to the nature of the roads over which it has to



London's Gasolene Driven Public Cab.

verse. In addition to the 'busses built for the London & District Company, the firm have constructed several vehicles for the Great Western Railway Co., in this case the number of passengers carried being 40. They have also constructed a number of 'busses for the London Road Car Co., which is one of the old omnibus companies lately taking to the new form of traction.

The various railway companies have during the past year greatly augmented the country motor 'bus service which was tried merely as an experiment, as Straker & Squire and Thornycroft & Co., Ltd., have been busy in constructing special vehicles for this class of work. The railway companies have also gone in largely for char-a-banc vehicles, which follow on the lines of the 'busses, the chassis being identical. The Thornycroft here shown has had a great amount of work in Belfast. It is fitted with a 24 horsepower motor and the body is designed to carry 17 passengers. It is worthy of note that, as a rule, the 'busses supplied to railway companies are constructed with side doors, while not a few have tops constructed to convey passengers' luggage only, these vehicles being largely used for country districts.

The Wolseley Tool & Machine Co., Ltd., have devoted an immense amount of attention to the motor omnibus, and this has been rewarded by a large number of orders. Several vehicles manufactured by this firm are being run in London, and it will be seen on reference to the illustration that the employment of the horizontal motor enables the total length of the vehicle to be materially reduced, which is, perhaps, an advantage in congested traffic. The Wolseley



Belfast's Gasolene Char-a-banc.

by the Wolseley Company. These have proved entirely satisfactory, and far more economical than horse-drawn vehicles, to say nothing of the advantages of extra speed and long distance capacity.

Messrs. Clarkson, Ltd., who are celebrated for their steam wagons and 'busses, have for some time past been engaged in the construction of gasoline vehicles to the order of various 'bus companies all over the country. The London General Omnibus Company, which is perhaps the largest and most important concern of this nature in the Kingdom, have several of the Clarkson vehicles in use, and lately have made the

travel. It is one of the few four-cylinder vertical types which has high tension accumulator ignition, which certainly is more easily handled than any other, especially in the country districts. The Argyll Company also makes a light delivery lorry in two sizes, one with a 16 horsepower, four-cylinder engine, and the other with a 12 horsepower, two-cylinder motor.

The motor cab, while not new to London, having been tried some year or so ago, has been developed to such an extent that a considerable number are now plying for hire, and several companies have been formed to run them. A typical pattern is



Great Western Railway's Gasolene Van.

little doubt that the great advantage of such cars in saving long waits for trains, especially on cross country journeys, will soon render them not only popular, but almost indispensable to the up-to-date firm.

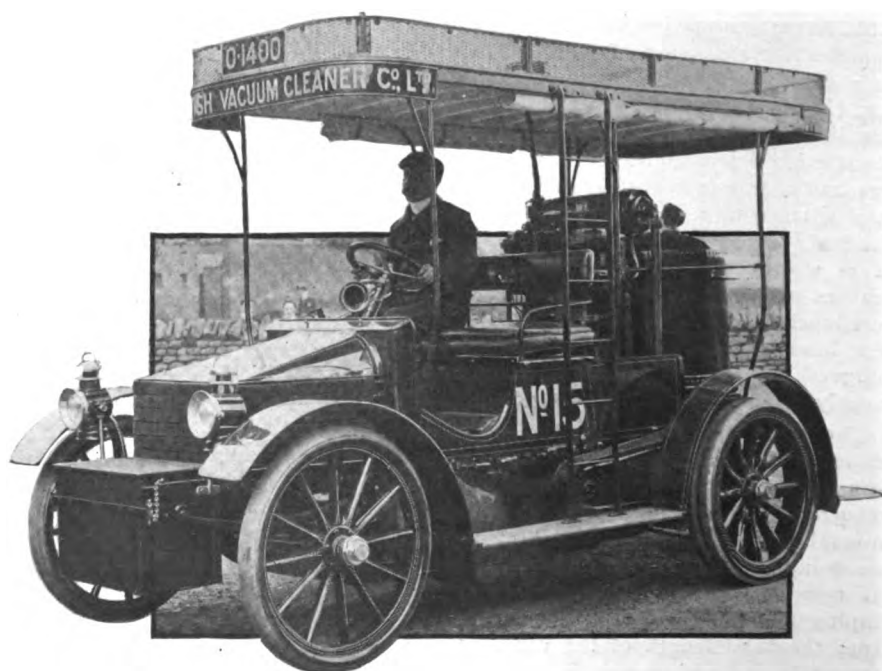
Although lately engaged in the construction of steam lorries, the Lancashire Steam Motor Co., Ltd., have now gone into the manufacture of gasolene vehicles. The steam type is very successful for slow-haulage, and the lorry shown in the illustration is a typical pattern, but for motor omnibus work the present trend is towards the gasolene engine. The new 'busses built by the Lancashire Co. to the order of the London & Suburban Omnibus Co., Ltd., are designed to carry 38 passengers, 16 inside and 18 on deck, while accommodation is provided on the driver's seat for two more. But for some reason; however, the police will not permit seats of the latter class to be used. The motor is four-cylinder, vertical, developing approximately 22 horsepower at



Gasolene Parcel Delivery.

that manufactured by the Argyll Company. This is made with gasolene engines of either 12 or 16 horsepower, according to the requirements and general conditions under which the vehicle is to run. The motor cab is extremely popular, so popular, in fact, that it is rather difficult for the man in the street to engage one, because it is no uncommon thing for the driver to be requested to take a couple of passengers down to Brighton, some fifty miles away, in the event of the last train having gone, while during the day, the motor cabs are often engaged for long drives into the country.

The commercial traveler as a class has been sadly neglected by the motor trades, but in this matter the Argyll Company is again conspicuous in the construction of a commercial traveler's car. It is manufactured with either 12 or 16 horsepower engine and can be arranged to seat either one or two travelers and fitted up to carry samples for almost every trade. It is extraordinary that so few firms have had the enterprise to provide motor vehicles for their travelers up to this time, but there is



Gasolene Vacuum Cleaning Outfit.

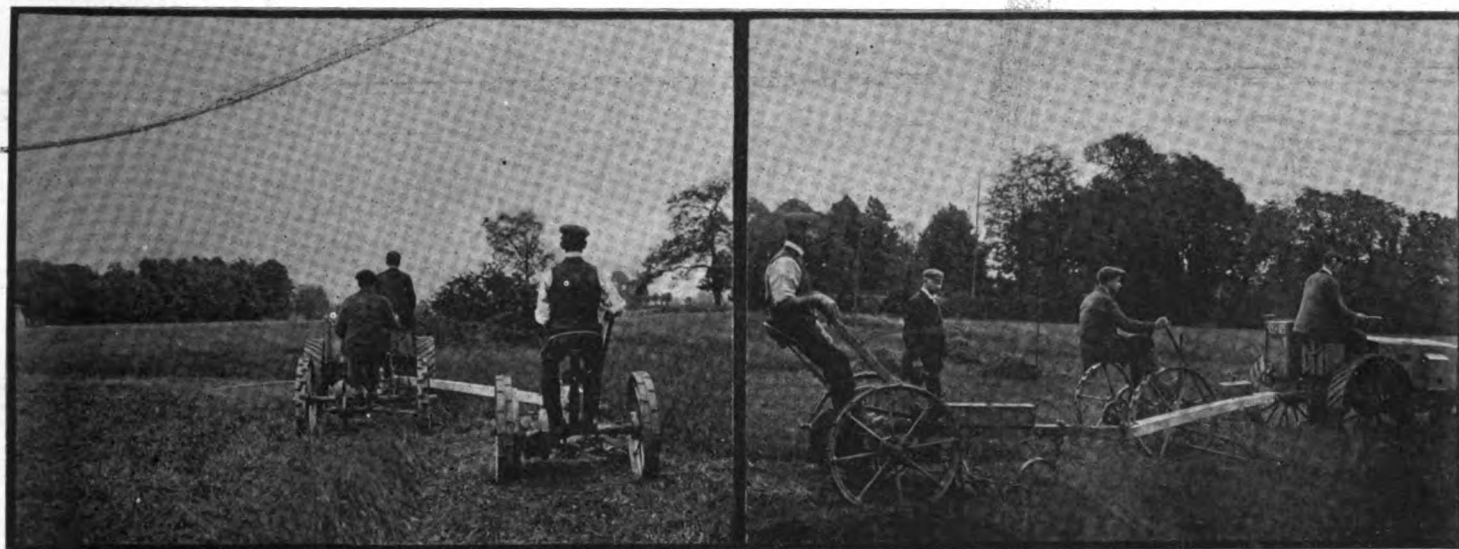
800 revolutions, 30 horsepower at 1000 revolutions, and capable of acceleration to 1,250 revolutions if necessary. The cylinder bore is $4\frac{1}{4}$ -inch and the stroke $5\frac{1}{4}$ -inch. The water jackets are large, and low tension magneto ignition is used. The gearing differs from most types in that the gears are always in mesh, while a special arrangement is fitted by means of which, if the driver misses his gear, the slow speed automatically comes into operation, so that the vehicle cannot possibly run backwards. There are three forward speeds and a reverse.

Although it may be said that at the present time the attention of manufacturers is

revolutions. The transmission is by means of a chain to the main differential. The carrying capacity is half a ton. The 12 horsepower car also has a two-cylinder motor, and except that the cylinders are larger, the design is practically the same as that of the 8 horsepower vehicles. The firm also constructs a 20 horsepower, 2-ton wagon, and a similar vehicle designed to carry three tons. Both these wagons have been largely used, and some local authorities have adopted them for municipal work.

While the motor 'bus and the vehicles designed for the haulage of goods are to be regarded as of most importance, these two classes by no means comprehend the

it is too fast for the average farmer, who likes to take things easily. It can haul a three or even four furrow plough making a ten-inch cut at the rate of some six miles an hour, and the only thing that is at this speed a somewhat stronger plough is required. In reaping and binding it far outstrips the best team of horses and in open competition has done nearly double the work in the same time. It is also excellent with the mower, and the speed is a great advantage in this work. It can be used to drive a threshing machine, a special pulley being provided for this purpose, and thrown into use when the road wheels are disconnected from the engine. Finally, it



Ivel Agricultural Motor in Use.

largely centering on the omnibus trade, yet many firms are also catering to the ordinary tradesman who wants a light delivery car. This branch of the industry is entirely separate from the lorry manufacture, which is, however, steadily increasing, but calls for no particular reference, as the standard designs are all widely known. There is, however, an immense field for light delivery cars for local tradesmen, and the Wolseley Company have brought out several types of these. One illustration will serve to show the general idea. It will be seen that the parcels car is substantially the same, so far as chassis is concerned, as the ordinary light cars turned out by the firm. It is made in three sizes, 6, 8 and 12 horsepower, the latter kind having a carrying capacity of one ton. The engine of the 7 horsepower car is horizontal and has a single cylinder with a bore of $4\frac{1}{4}$ -inch and a stroke of 5-inch. The power is developed at 800 revolutions per minute. The ignition is high-tension accumulator, which is perhaps the best form for a vehicle of this type, which will be largely in the hands of drivers to whom the apparent mysteries of either of the magneto systems are apt to be puzzling. The 8 horsepower car is driven by an engine with two horizontal cylinders of 4-inch by 4-inch, developing the full power at 900

entire range of the field. For besides these, there are numerous special uses for the commercial vehicle in which it is rapidly creating a market for itself. Thus, for instance, the repair work on the overhead circuits of the Belfast and other tramways is done by means of a motor tower wagon, through the use of which delays consequent on a breakdown are frequently reduced by a considerable amount over what they formerly were when horse-drawn wagons were used. Still another type of special commercial car has been supplied to the British Vacuum Cleaning Company for use in its work. The vacuum apparatus is placed at the back, and a canopy top capable of carrying considerable weight is fitted. This vehicle has proved excellent for the work for which it was intended.

Apart from ordinary commercial vehicles as used for road work a good trade is already being done in agricultural motors of which the Ivel, invented by Dan Albone, of Biggleswade, Bedfordshire, was the pioneer and is still without a rival. This machine will do the entire work of a farm, from ploughing the land to reaping and binding, and finally hauling the produce to the nearest market, or to the railway. Those who have adopted it are loud in its praise, the only complaint being that, if anything,

will drag extremely heavy loads and takes the place of an entire team of horses. The engine is a two-cylinder, horizontal, opposed pattern, giving rather over ten horsepower at about 800 revolutions. A special feature is the arrangement by which kerosene can be used in the ordinary carburetter, only a small quantity of gasoline being required for starting. After the motor has been running for a short time, the gasoline is turned off and the kerosene turned on.

In one respect at least it has not taken London's motor 'bus drivers long to adopt the tactics of their horsed predecessors which some years ago made abundant copy for the comic papers. This was known as "running rivals off the road," and with the inauguration of competition it has been revived. The method employed is said to be barbaric in its simplicity. Two 'busses of the stronger company are detailed to "nurse" each of the new company's vehicles that was selected as a victim. One of these would make a business of arriving at important corners first, so as to pick up all waiting passengers, and the second would follow closely behind to take any that happened to be left. Racing for the corners was, of course, the chief feature of the game.

WHEN THE CAR IS NEW

Why Care is Necessary and the Manner of Inspection that is Advisable.

In the earlier days of the motor car, the testing and "running in" process at the factory was quite as essential as any other steps in its manufacture. For then only were the minor defects in its construction discovered and set right by the skillful hands of the workmen before it fell to the less competent care of the owner. There was not a little of the experimental work which was supposedly done only on the trial cars performed, and there were all the little imperfections due to the large amount of hand labor which then was unavoidable got rid of and the machine tuned up for its work on the road. Now, however, matters of design have settled down to a point where the use of interchangeable parts and duplicating machinery has become possible, and so it happens that year by year, the testing process becomes more and more perfunctory, and the actual test itself becomes less and less essential to the subsequent satisfactory working of the car.

That this is the case, is greatly to the credit of the maker and also to his benefit, for it reduces largely a factor of expense in the making of the car which hitherto has been hard to keep track of and hard to reduce as a consequent item. It implies that the average of all the cars turned out will be more uniformly excellent than under the old regime when so much depended on the personal equation of the tester and the amount of time granted him for the work, and also a greater similarity in the cars. Also, it implies that the purchaser of a car gets a machine which is absolutely new instead of one which has been in service over anywhere from a couple of hundred to a thousand miles. For it used to be the boast of one of the foreign makers that all cars of his make had been run over a thousand miles before they were sent out. And this, though guaranteeing the good working condition of the machine when it came into the hands of its owner, by the same token involved the marring of its finish to a greater or less extent, and deprived him of that feeling of supreme satisfaction which comes only with the possession of something which is "brand new."

This fact, however well it may speak for the builder of the present day, also places upon the owner of a new car a burden of responsibility which was not laid upon him in those days. For although the new machine comes to him in perfect running order as far as the adjustment of parts is concerned, yet the various journals are not as yet wholly seated to their bearings, and the parts have not as yet become fully adapted to the conditions under which they will have to serve. In other words, while the testing process is now carried on in

just as thorough a way as it formerly was, and while the cars are now turned out in better form than heretofore, still a portion of the running in process is relegated to the user.

This implies no laxity on the part of the makers for the most part, for granted the proper measure of caution on the part of the driver, such caution as would be exercised by any well versed engineer in handling a new piece of machinery, there will be no likelihood of trouble. If, on the other hand, he be inclined to expect from the machine all the work that would be required from it at the end of the season or after it had been in service for several months, he is not unlikely to bring down upon his head a little trouble, which, of course, he will be likely to lay at the door of the builder.

The great tendency of a child with his new toy, to play with it until it is broken, and the great tendency of the grown-up child with his new motor car, is to run it to death; that is to say, to give it constant and relentless use, giving it at the same time, no more attention than he would give to an older machine which had become fully "acclimated" to the work into which it had been thrust. Of course, it goes without saying that a new machine of any sort requires more attention than does one which has seen some service. The bearings demand frequent inspection to see that they are getting plenty of lubricant, the smaller parts which are vital in their functions require inspection to see that they have not lost their adjustment and have not developed flaws which could not be discovered until after they had been in service for a little time, and the whole fabric needs a complete inspection now and then and at more frequent intervals than it will need later on, to see that it is in proper order, and all parts working in proper relation to one another.

In other words, every new car needs to be handled gently for the first few hundred miles and driven with unusual care; not too fast, and not too slow, until it is working "sweetly" in every fibre. And during this supplementary running in process, the user should be over particular to see that all the oil feeds are working plentifully, that no part is being starved, and that no part is running warmer than it should. In general, the matter of adjustment takes care of itself. If the mixture needs more air or less gasoline, the lack of power, or any of the other well-known symptoms reveal the fact. All the other troubles which are to be expected during the life of the car have their little signs as well, by which they can be told, but the way in which the parts are adapting themselves to their working conditions, can only be told by careful inspection. Just where the makers' obligation leaves off, that of the owner begins. It is up to the maker to make the car, but it is up to the owner to make it go, and generally speaking, it is his own

fault if it does not go, and go as far as he can expect it to in reason. But unless he exercises due caution in its manipulation for the first few hundred miles it will not, nor will it be the fault of the maker or anyone but himself if it does not.

How the Accumulators Were Reviewed.

With the increased popularity of the accumulator for ignition purposes there has come a new set of difficulties for the well versed driver to master. With the only other form of battery used on the car—the dry cell, there were seldom more than a few expedients to be resorted to. A good driver soon knew them all and knew how to take advantage of them, but there is a disposition to regard the accumulator as something apart—in somewhat the same light as the magneto is looked upon by many.

An instance illustrative of this fact is to be found in the experience of a driver who was compelled to resort to his reasoning powers through inability to obtain other aid. When the engine began to misfire, he vainly endeavored to buy or borrow a new set of accumulators, but being without funds, this was not easy. A test with the voltmeter showed the voltage to be but 3, although the battery had been charged but a short time before. As a last resort a few cents worth of sulphuric acid was invested in, new solution mixed and put in place of the old. The effect was magical, the needle showing 4.1 volts immediately and the engine was run thirty-five miles without missing. A test the next day showed that the cells were still normal so that it was evident that the new solution was the only thing needed.

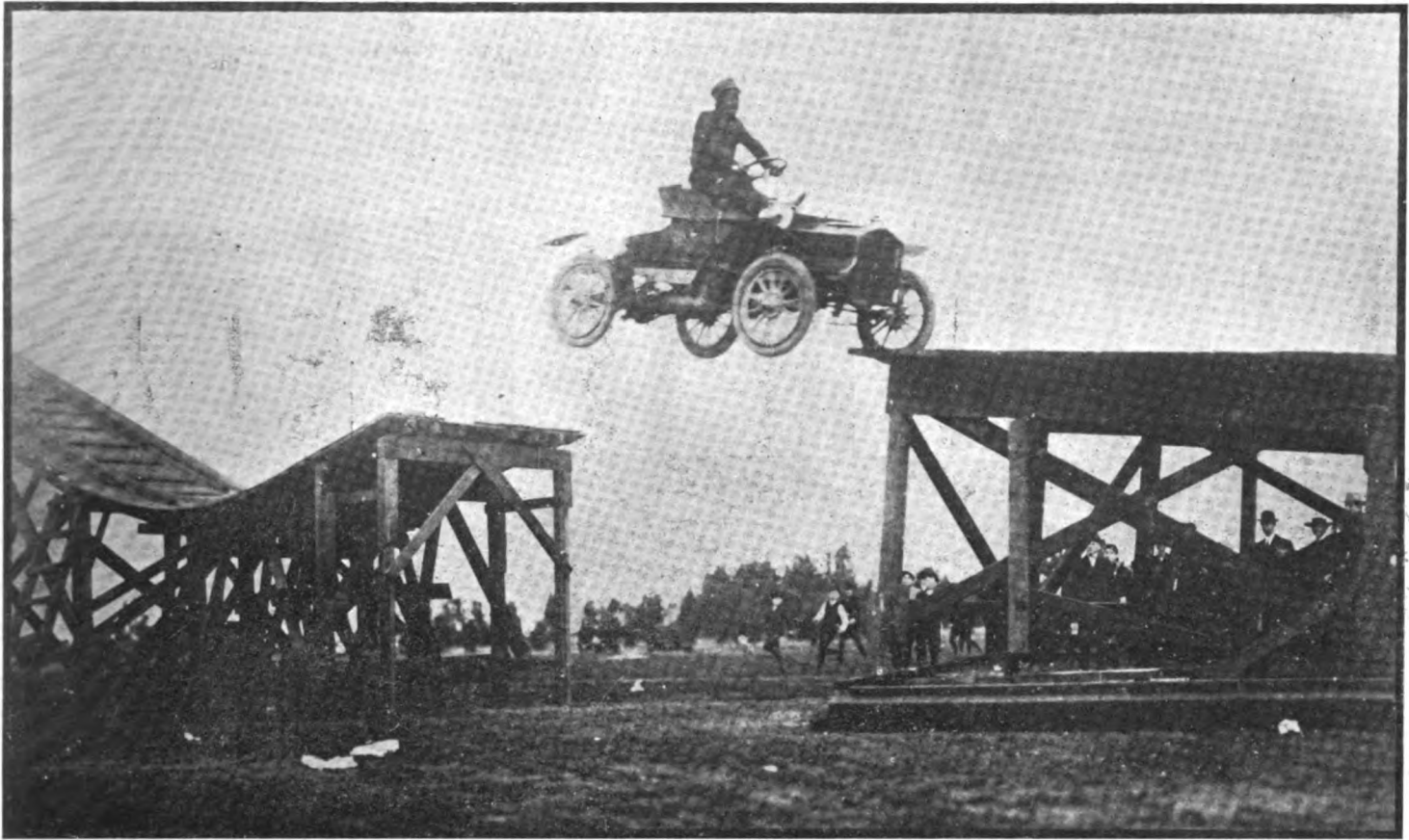
Where the latter is concerned, it is well to carry a hydrometer or battery tester on the car so that the specific gravity of the solution may be kept constant at all times. The proper specific gravity for accumulators varies more or less with the make of cell and this can be readily ascertained. The average solution consists of one part of commercial sulphuric acid to four parts of water, and the acid should always be added to the water, never the reverse in mixing.

Why Solder Should be Avoided.

In all work about the electrical installation of the motor car the use of solder should be avoided as much as possible, as the heating of the parts tends to harden the copper conductor, and also as the flux tends to soak into the insulation and injure it, rotting it in some cases, and in others, where a metallic salt is used, impairing its insulating quality. Where soldering is absolutely essential, a non-conducting flux or soldering compound should be used, or failing this, simple resin.

The first of the four-cylinder Ramblers left the factory at Kenosha, Wis., last week. A carload of them is being made ready for shipment to New York this week.

Dr. Carver Doing his "Death-Defying" Feat.



How the Doctor Leaps the Gap.

One more stunt has been added to the already long list of hair-raising "attractions" which have been bred from the ordinarily harmless roller coaster, in the shape of a motor car which leaps the gap. The identical performance gone through with by a performer mounted on a bicycle has ceased to charm the public, and the demand for something more "death-defying" has been met by a Los Angeles, Cal., man, who uses a Cadillac runabout for the purpose. The track is every whit as steep as that used for the bicycle trick, and like that incline is free from any concealed safety devices which prevent the machine from going astray; the gap itself is fully thirty feet wide.

When the feat was first attempted, the machine used suffered considerably. Both front springs were broken on the first attempt, and each time following, either the front axle was bent or the frame gave way. After several attempts with a two-cylinder runabout, Dr. Carver, the experimenter, bought from the Lee Motor Car Company, a second-hand Model E Cadillac, which already had seen six months' hard usage on the road. That it was still in good condition, however, is shown by the fact that since its first jump it has been down the shoot five times successfully, and that no repairs of any sort have been deemed necessary to any part whatever. After having made fifteen more jumps, Dr. Carver will

start on a circuit of the State, carrying this along with his line of other attractions of a similar nature.

Students Organize Two Clubs.

An automobile Club has been organized by the Princeton (N. J.) University students. Several long tours are planned, one of them along the Atlantic coast. These officials have been elected: President, Sterling Morton; vice-president, Dyer Pearl, Jr.; secretary-treasurer, David M. Davis.

Several of the students of the Polytechnic Preparatory School, in Brooklyn, have formed the Poly Prep Automobile Club, "for social enjoyment and for the study of the mechanism of the automobile." They have elected these officers: President, R. E. Pardee; vice-president, J. B. Cronin; secretary, J. C. Van Cleaf; treasurer, E. C. Gillespie.

The Baby as an Excuse.

A new use for babies is suggested by the excuse of a chauffeur who was summoned for exceeding the speed limit. His license was asked for and handed over. It was badly mutilated. "The baby tore it," was the explanation forthcoming. The remarkable coincidence that the astute infant should have selected the only part of the license that had borne an endorsement was duly commented upon by the magistrate.

How Speedometers Will be Tested.

An "Odontachymetre" competition is the very latest. It is not for prehistoric animals, but is to be a test of speed indicators and this is merely the French way of saying it, or rather the Gallic adaptation of the classic Greek to the purpose, for the Technical Committee of the Automobile Club of France, which is responsible for it, had but one alternative, and that was "cheminovitessometre", which is the pure French of it. A prize has been offered by Baron Henri de Rothschild for the best device of the kind and a set of rules and regulations to govern the contest is being elaborated.

The rules drawn up for the contest by the Technical Committee of the French Automobile Club, provide that it shall commence on May 1st, the entries, for which the fee is \$10, closing on April 15th. Unless three or more entries are received, the contest will be postponed. The trial will consist of two different tests, running twice over a measured course of 100 kilometres (62.5 miles), during which independent readings will be taken every 25 kilometres, and a bench test in the laboratory. In making the awards, the judges will take into consideration the ease of adjustment and repair, regularity of working and durability, accuracy of record which will, of course, have the most effect on the result, and the weight and price. This is the first of the competitions of a similar nature to be held in France during the year.

TRUCK FOR TWO PURPOSES

Not only Hauls Heavy Loads, but Helps Lay Underground Wires.

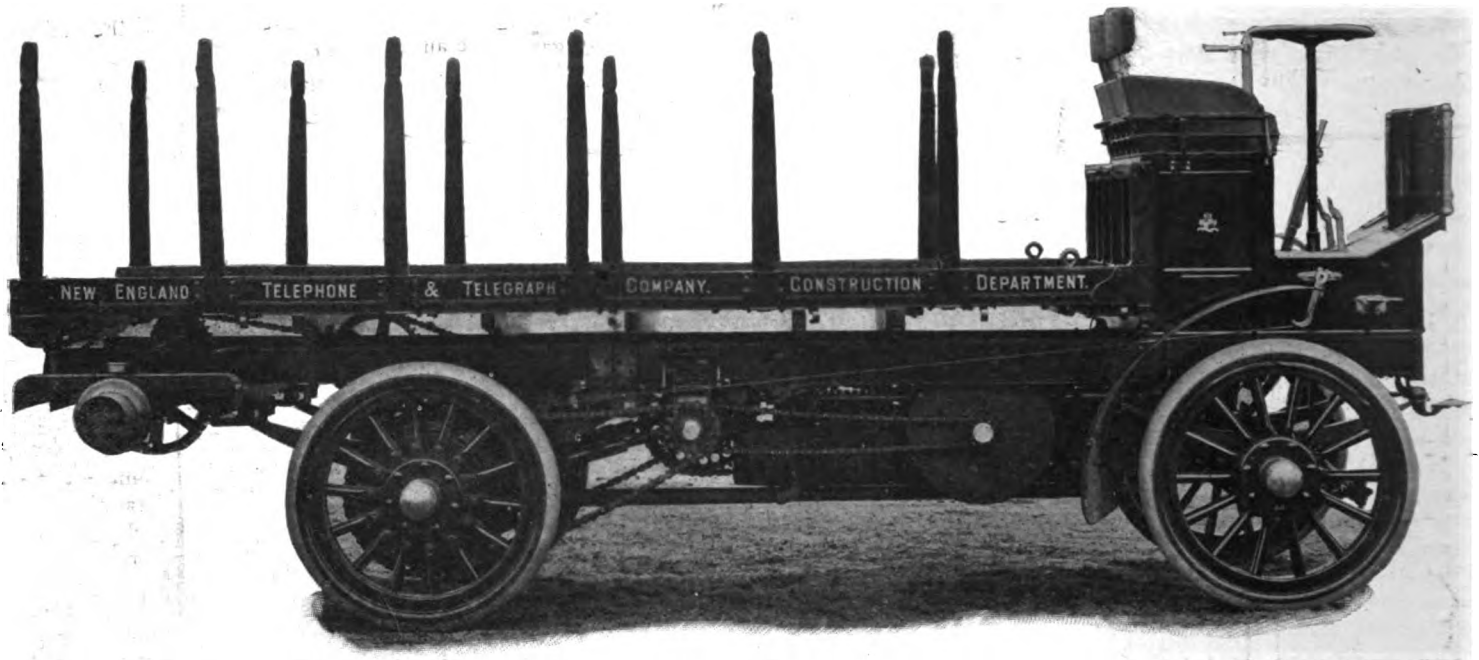
Daily the adaptation of the commercial motor vehicle is becoming broader, and daily its application to some novel use is announced. One of the latest achievements

entirely novel, and its early trials would seem to indicate that it is to be wholly successful.

The chassis is simply that of an ordinary three-ton truck driven by a horizontal two-cylinder motor of the familiar Knox air-cooled type, and rated at twenty horsepower. The chief departure from the ordinary is to be seen at the rear of the platform, where is mounted on a heavy

sufficiently so that the drums can be worked from the side without inconvenience.

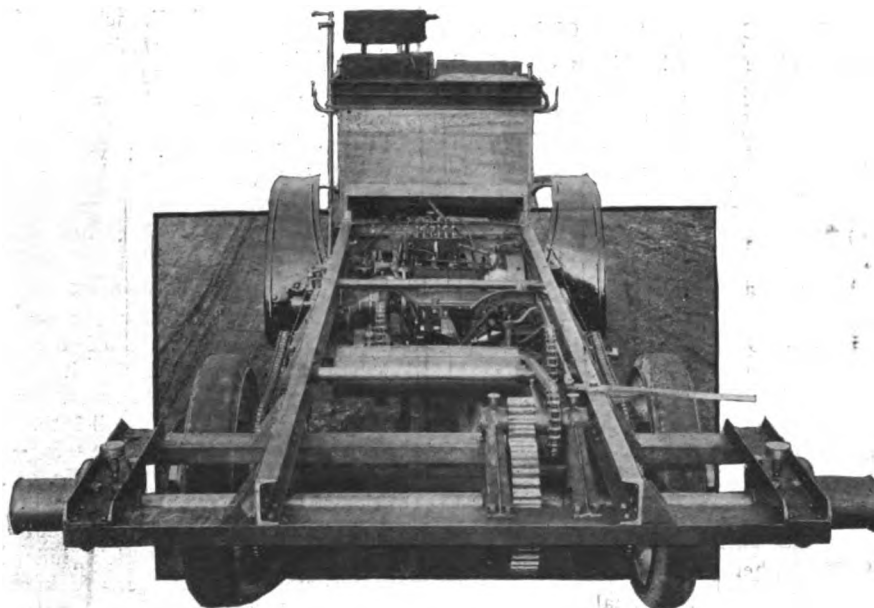
The particular service for which the machine is designed, that of pulling electric cables through underground conduits, has been done by hand-driven winches for the most part up to this time, the only exception, so far as is known, being in the case of a few heavy electric trucks which have been equipped with power winches driven



of the Knox Automobile Company, of Springfield, Mass., in this line has been the construction of a truck for the New Eng-

land Telephone and Telegraph Company. This shaft is driven by a double chain re-

by small independent motors. Thus the Knox Company seems to be justified in making the claim that this is the first machine of its kind to be built, since in this case, the power is taken from the main driving motor of the truck, and all superfluous machinery in this way dispensed with. The platform body, which measures six by twelve feet in the clear, is set high enough to clear the mechanism of the winch, and is furnished with stake sideboards.



Showing the Winch and Operating Mechanism.

land Telephone and Telegraph Company, of Boston, for use in laying underground wires. And while the application of the motor propelled vehicle to this sort of use is by no means new, the method of construction of this particular machine is

duction from the engine shaft, and the motion is controlled by means of a friction clutch actuated by a lever located within easy reaching distance of the drums. The framework of the winch is very heavy and projects from the sides of the platform

"Our cars cannot be distinguished from private vehicles, as only the latest side entrance high-grade touring cars are used," reads the ad. of a Western garage with cars to hire, but the very latest note, in the business of renting automobiles is expressed by the second part of the announcement: "Our limousine car is the only one in the rent service in constant demand for weddings, receptions and teas. Kindly place your orders in advance."

Postmaster Wilcox's request for automobile mail deliveries in New York, now pending some time, will have its fate decided in the near future by the outcome of experiments of this nature which are shortly to be undertaken in Detroit. Thorough tests of the car for this service have never been made and a favorable showing in Detroit will doubtless result in tipping the balance its way.

JAMAICA NO PARADISE

**New York Tourists Upset a Popular Notion
Roads Dangerous and Fuel Scarce.**

According to A. A. Stewart and Herbert S. Francis, two New Yorkers, who are now touring in Jamaica, automobilists who contemplate a tour of the island would do well to ship a sufficient quantity of gasoline along with the car, for the "blood of the motor car" is a very scarce commodity there and very expensive.

In a letter just received by Douglass Andrews, of New York City, selling agent for the Berkshire and Bliss cars, Francis states that when they landed in Kingston with their car they had just ten gallons of gasoline. Hearing that a garage was in town he started confidently off to replenish the tank, only to learn that not a drop of the fuel was to be had. Another American, touring the island, hearing of the difficulty, gave Francis ten gallons.

"Gasoline in Jamaica, when it can be found," writes Mr. Francis, "is worth from 50 to 75 cents a gallon. The duty on it is 15 cents a gallon—almost as much as a gallon costs at retail in New York. The automobile tourist, if he is going to remain for any length of time, would do well to ship his supply from New York. A duty of one-sixth of the value of the car is also collected at the Custom House, but the amount is returned when the machine is taken out of the island."

Judging from Mr. Francis's letter, touring in Jamaica has its hardships as well as its pleasantries. Anent the first trip to San Antonio, sixty-nine miles from Kingston, Mr. Francis writes:

"You may perhaps round a corner suddenly and see a sheer declivity of 1,000 feet on one side and at the bottom a mountain stream wending its way in and out through the various obstructions. When we reached Annotta Bay we still had thirty-three miles to go, and it was getting dark. The darkness of the tropics, due to the dense foliage and vegetation, was, to say the least, conducive to a serious accident. I managed fairly well for about twenty miles, when suddenly the car swayed in some soft clay, and off I went into a ditch, with both axles buried. We were four miles from the nearest plantation, but I procured a Jamaican as black as your hat and persuaded him to run to the plantation and ask the manager to send us a mule team. I received his reply in about an hour and a quarter, saying that the mules were turned out to grass, and, being very hard to catch, he had sent his farm hands to try to push us out. It took seventeen men, with the aid of two large levers, to dislodge the machine.

"It was one of the hardest roads I ever drove over, the corners here being practically all acute angles and exceedingly dangerous. The only pleasure derived

from the journey was the way the engine worked, never giving the slightest trouble or missing all the way, and pulling up hills that seemed impossible, on the second speed. When we came to a level stretch we easily went forty to fifty miles an hour."

Biggest of Automobile Buildings.

Boston's "motor mart," the biggest garage in the world, was opened to the public on Tuesday, 27th ult. Five streets—Columbus avenue, Eliot, Church, Dennison and Pleasant streets—bound the structure, which has a floor area of 47,000 square feet of concrete alone. The garage, which is under the same roof, though separated from the twenty-one salesrooms, occupies 20,000 square feet of space on three floors and has a capacity of more than 300 cars. The building is constructed of steel and concrete and is the most complete establishment of its kind in existence, a restaurant and postoffice even being within its walls. A number of local dealers have secured stores in the big building.

Brooklyn Claims Second Largest Club.

Where size is concerned the Long Island Automobile Club now lays claim to being the second largest organization in the country. It has a present membership roll of 340, and judging from the rate of increase during the past few months, the ambition of its supporters to have this reach half a thousand by June first, seems in a fair way or fulfillment, as there are 1,700 registered owners of automobiles resident in Brooklyn.

Team Race Between Two Western Clubs.

Rivalry is becoming keen between Indiana automobile clubs and Terre Haute and Indianapolis have decided to settle the question of prestige by holding a team race. Each team will be composed of six cars from each club and each car will carry five men. The cars will be sent off separately and timed for 73 miles. The event has been set for the first Sunday in May and the defeated club is to provide a banquet for the victors.

Where Speed Law is Dead Letter.

According to Consul Fleming, at Edinburgh, whatever may be the petty restrictions imposed on the motorist in the way of arrest for technical violations of the speed ordinances in other parts of Great Britain, in Scotland the law is practically a dead letter and it is nothing unusual to see cars going at the rate of fifty miles an hour on the main roads leading into Edinburgh.

Twenty-five Seconds Wonder Crops Up.

About this time of the year crops out that hardy perennial about a wonderful torpedo-shaped electric racing car being in course of construction in the shops of the General Electric Co., at Schenectady, N. Y. This time it is being designed to travel a mile in twenty-five seconds.

BOSTON OWNERS UNITE

**Finally Complete their Organization—
Abuses Which they Will Seek to Correct.**

With the "express determination of encouraging the use of automobiles in a manner consistent with the laws of the State," the automobile owners of Boston and vicinity met last Thursday night, 1st inst., and effected the permanent organization of the Automobile Owners' Association, with a membership of more than 500. Plans for the perfection of such an organization have been under way for several months past, a temporary organization having been formed several months since.

The new organization will endeavor to influence its members to regard the right of others in the use of highways and will report to its officers any person driving a car in such a manner that is deemed reckless or dangerous. Most important, however, the organization will demand fair and just treatment from those enforcing the laws in relation to automobiles, and will employ counsel to secure it. It will also conduct the cases of its members whose arrests seem unwarranted. Frederick Tudor was elected president; John M. Graham, treasurer; and Francis Hurtubis, Jr., secretary and counsel. In addition to these the following directors were chosen: Frederick E. Snow, George D. Clapp, Henry E. Russell, Oliver Ames, Eben D. Jordan, W. O. Gay, William M. Wood, Charles Sias, William A. Tucker, N. W. Jordan, George U. Crocker, Elliot C. Lee, Oliver W. Mink, Samuel Carr, H. L. Burrage, R. B. Fuller, R. H. Stearns, Jr., Jeremiah Williams, E. Hayward Ferry and John L. Batchelder, Jr.

Lowell Joins the A. A. A.

At the annual meeting of the Lowell (Mass.) Automobile Club, it was unanimously voted to join the American Automobile Association. The officers also advocated the appointment of a committee to secure new members and appointed Members Jones, Kittridge, Green, Noyes and Runnels on this committee. The following officers were re-elected: President, H. E. Fletcher; vice-president, Dr. M. W. Jones; secretary, E. P. Cheney; treasurer, W. H. Green.

Still Another Bill in Jersey.

Still another automobile bill has appeared in the New Jersey legislature. On Monday night, Senator Cornish, of Warren, introduced a measure which makes it a misdemeanor for any automobilist to refuse to slow down to seven miles an hour when requested to do so by an approaching horseman; also a misdemeanor to run a car faster than a mile in two minutes or to display fictitious license numbers. The penalty for such offense is \$500 or sixty days in jail.

WE WANT TO BUY

BUICKS

**If you have a second-hand
Model "C" 1905 Buick touring
car for sale, communi-
cate with us at once.**

Jaynes Automobile Company,

BUFFALO, N. Y.

Doing a Thousand and More in Mud and Rain.



The Rambler Car and its Crew that Did it.

Ninety-eight Hours Without a Stop.

It seems now to be quite the fashion for every automobile manufacturer to send one of his cars on a 1,000-mile non-stop contest, and until several weeks ago all these so-called records had been established by big four-cylinder cars. Just before the Philadelphia show, however, W. F. Smith, of the Philadelphia branch of the Thos. B. Jeffery Co., made an enviable record with a double opposed motor Rambler car, under most adverse weather conditions, a feat of which the manufacturers may feel justly proud. The run started from the North Broad street, Philadelphia, garage, at noon, February 20th, and was made in relays of 38 miles each, going out through the hilly section around Ogontz and finishing at the starting point. J. E. Bauger, C. B. Cleaver, Herbert Bittner and Joseph Kachline, were the drivers who alternated at the wheel during the trip.

During all of one day and night the car ploughed through mud and water in one of the worst rain storms of the year, and at times the mud nearly reached the hubs. At the completion of the original undertaking of 1,000 miles the engine was run-

ning so smoothly, not an adjustment having been made since the start, that it was decided to continue the trip. The operators were, however, almost exhausted from the constant exposure to wind and rain that the car was left standing with the engine running until 9 a. m. Friday morning. Then Herbert Bittner and Joseph Kachline started up-State on a 250-mile trip, the route embracing Norristown, Pottstown, Phoenixville, Reading, Lebanon and Harrisburg, the latter place being reached at 10:45 p. m. Friday.

At places the roads were all but impassible and four miles from Harrisburg the passengers had to go ahead with the dash lamps to pick out the road. Twelve miles from Lancaster a mud hole was run into, and the car sank to above its hubs. It required nearly an hour and a half to extricate it, but the motor was not once stopped. After returning to Philadelphia several trips were taken around the city, when the motor finally was stopped by Senator Vivian S. Gable, having run continuously for 98 hours and 6 minutes. In that time it covered 1,383 miles of the worst road imaginable.

Chicago Fixes Fares for Public Cars.

Chicago, Ill., has passed an ordinance fixing rates to be charged for the use of automobiles plying for hire. For cars with a capacity of four or more persons, the rate for one or more persons, not exceeding one mile, is one dollar, and for each additional passenger, fifty cents for the first mile and fifty cents for each additional mile; by the hour the rate is to be five dollars. For automobiles carrying not more than three passengers the rate is to be fifty cents for the first mile and twenty-five cents for each additional mile; the rate for the hour is three dollars. The rates are higher than those that prevail for horse-drawn rigs, but, of course, the service is superior.

Maryland Chauffeurs Getting Together.

The Chauffeurs' Association of Maryland has organized with fourteen members. A general call has been sent out throughout the State for every driver to join the new organization. The association elected these officers: President, A. F. Wagner; first vice-president, C. E. Loose; second vice-president, J. Dyer; secretary, D. Kramer; treasurer, E. U. Burrier.

Where Armored Hose is Advisable.

Like a chain an automobile is no stronger than its weakest link and one of the weak links in the automobile motor consists of the rubber hose pipe connections between the radiators and the water jackets and between the parts of the latter where twin cylinder castings are employed. On a smooth running engine there is not sufficient vibration set up to damage these connections or cause them to let go and spray everything with hot water in the course of a season's hard running, but then every motor does not run smoothly. Where trouble is experienced with this essential, the hose pipe in place should be discarded entirely and armored hose substituted. Where there is any strain on the unions, the latter will hold better than the ordinary type.

Proof of Proper Lubrication.

Low grade lubricating oils will not maintain a film between the piston and the cylinder walls at high temperature and high compression developed in the automobile motor and the result is rapid wear on these parts. It is not uncommon to have a motorist point to a well polished piston or cylinder as an indication that a good quality of lubricant is being used, while as a matter of fact no stronger argument could be presented against a quality of oil that will do this.

Where the pores of the metal have not been filled with graphite and nothing but

oil has been employed, the high polish is the certain tell-tale of excessive friction and to the practised eye conveys the information as surely as if said in so many words that poor oil has been used there. If upon an examination of the cylinder the same type of motorist who regards the high polish as an indication of smooth running, merely finds some bright streaks, these are regarded as a sign of undue friction. A well lubricated cylinder ought to present a rather dull color, showing that a film of oil has been maintained and has reduced friction to a minimum.

Want Dealer on City Commission.

At the last meeting of the New York Automobile Trade Association, the committee appointed some time previous to petition the Mayor to place a member of the association on the Municipal Explosives Commission, reported that the Mayor desired the association to nominate several members from its ranks as candidates for the appointment. Accordingly, all of the members of the Board of Governors of the association were nominated and the Mayor will be communicated with further in order to insure action being taken in the matter.

Hartford, Conn., has passed a gasoline ordinance. It requires gasoline in larger quantities than five gallons to be stored in a metal tank buried at least three feet under the ground.

Gasoline Railway for Russia.

"Viestnik Putei Soobschcheniya" is responsible for the statement that in a short time a direct automobile service will be established between Novorossisk and Sukhum, Russia. It is planned to run cars for five different purposes; for first-class passengers, with a speed of about 20 miles an hour, to run only from January to October; a postal-passenger service all the year round for second and third-class passengers at a speed of 15 miles an hour, and a freight service two or three times a week at 8 miles an hour. In addition to these, there will be baggage cars and local feeders in the districts tapped by the main line.

The route will be over the Black Sea paved road, and measures have already been taken to correct sharp curves and improve gradients as well as to erect protecting walls and strengthen some of the bridges. Besides this, special signaling arrangements will be made. There will be twenty stations in all, sleeping accommodations being provided at the four principal stops; Ossipook, Tuapo, Bardan and Hograch. The service will be started with sixteen passenger cars and nine for freight.

Richard Springer, a Philadelphian, has established an automobile stage line between Linoleumville, N. Y., and Arlington station. The route was formally opened last Saturday. A ten-cent fare will be charged each way.

ITS JUST LIKE DRIVING A NAIL.

One powerful stroke after another. That's the way the **Elmore Two-Cycle** engine works. Every time the piston of a two-cycle goes forward, it goes with strength.

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It registers any speed from $\frac{1}{4}$ mile to 60 miles per hour.

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We will renew any Auto-Meter within 10 years (unless injured by accident) if the Magnet (the heart of the instrument) is more than 1-10 of 1% incorrect. Any man who can afford an automobile can easily afford an Auto-Meter. It is as indispensable to the Motorist as the watch in his pocket.

Let us tell you more about it. Write us today and we'll send you with our answer our free book, "Auto Pointers." Address

The Warner Instrument Co., 119 Roosevelt St., Beloit, Wis.

(The Auto-Meter is on sale by all first-class dealers and at most Garages.)

Constitutes of a Good Chauffeur.

"The old adage: 'A workman is known by his tools,' applies with special force to the man in charge of a motor car. You can size up the value of a mechanic-driver by a glance at the car's mechanism and his tool kit. A man who jumbles his files, chisels and spanners together has not the instinctive feelings of a true mechanic," says Motoring Illustrated.

"If the inner tubes are stowed away in the lockers mixed up with grease-tins, carbide and rubber solution, you may safely write down your chauffeur as slovenly. And the outward and visible signs of his neglect are but the reflections of a similar, though perhaps, invisible neglect of the car's inward mechanism. The valves are doubtless left unground and in a pitted state. The brakes, which it so essential should be in perfect condition, are, in all probability, so neglected as to prove dangerously unreliable in an emergency. Such a mechanic will inevitably keep his bearings in a bad state, the car and its parts in bad fettle, and going from bad to worse.

"The car may present a fair outside, lamps bright, coach-work clean, paint well groomed, and metal polished to the last degree. But these are minor matters in the life of a car. The main consideration is the condition of motor and transmission. Is the grease in the gear-box full of metallic particles, which will find their way to the ball-bearings and cut them? Many mechanic-drivers, especially those of Continental origin, are keen, clever, and capable of extracting the last speed-ounce from the engine they neglect. Such men may be ruthless destroyers and wasters of good cars.

"A good motor-mechanic has the car, its outside and inside, at his finger ends. He knows the exact spot where each spare is stored; and these are always there when needed. His valves are always in good condition, and not neglected until all compression has been lost. He takes the earliest opportunity of making a good, sound job of temporary makeshift and road-side tinkering. He never runs out of carbide, oil, grease, or gasolene. He always carries spare inner tubes, which are air-tight. He has spare air-valves, split-pins, washers, nuts, and bolts, and never, by any chance, leaves the tire-pump or the jack at home. Such a workman is worth his salary—and a good wage at that. His employer is at peace with the world and the repairman. For a car so kept will not run its owner into ruinous outlay on repairs.

"Some chauffeurs are engaged because they are an ornament to the car. But if slovenly in work, though smart in appearance, they are not worth their salt. What avails brilliant fireworks-driving or good appearance if a valve gives out suddenly and he has neglected to carry a spare one? He may cleverly coax the car home minus the valve. But the man who carries a spare valve is more useful. The careless mechanic often seriously injures the reputa-

tion of a good type of vehicle by "blaming on the car" all his own slovenly sins and mechanical omissions.

"Wise employers institute periodic motor parades, arranged as rapidly as a fire-drill. A motor parade consists of a merciless inspection, without notice, of the tool-kit; lockers should be turned out; each separate part and accessory of the car to be subject to microscopic scrutiny. If found wanting, a stern caution to be issued. For a subsequent offence, a change of chauffeur.

Lubrication of the Clutch.

Every new device brings with it a demand for a different sort of treatment than was accorded its predecessor in the same role, and of nothing is this more true than the multiple disc clutch, which has, to a considerable extent, displaced the leather-faced cone. Many are frequently prone to condemn a thing because it does not respond to treatment totally unsuited to its needs and this is the case of the multiple disc clutch. It is to be run in "oil," and the driver to whom oil is just that and nothing more, there never appears to be any connection with the kind of oil used and the trouble.

Heavy lubricating oil should never be used in the multiple disc clutch for obvious reasons—the separation between the plates is but a fraction of an inch, and heavy oil has a well-known tendency to gum, so that when the clutch has been standing idle for a couple of hours, particularly in cold weather, the plates will stick fast. If the driver who has trouble with a clutch of this type will make an examination before condemning it, and after finding the cause of the difficulty clean out the gummy oil and replace it with something lighter, there will in few cases be further cause for complaint.

Artistic Decoration of Cars.

Artistic decoration of the car is said to be the vogue in Paris at the moment, according to cable reports and several famous artists have not disdained to use their brushes on the panels of automobiles of wealthy owners. Many are decorated with rural scenes, others allegorical groups and the majority merely bear the heraldic emblem of their owner in the center of the panel, while extremists have gone in for an entire scheme of ornamentation in color such as was prevalent on the palanquin chairs and stages of two or three centuries ago.

Hard to "Kill" the Motor.

Rather a striking instance of the longevity of the automobile motor as at present constituted is to be found in the instance in which a touring car was deposited at the bottom of the harbor of a summer resort in attempting to hoist it aboard a steamer. It was permitted to remain there for several months, but was finally raised and the car's former motive power now saws cord wood ten hours a day.

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15 cents per line of seven words, cash with order.

In capitals. 25 cents per line.

A TEN PASSENGER wagonette; sample car, 1905-1906 model steam; price and description on application. THOMPSON AUTO CO., Olneyville Sq., Providence, R. I.

FOR SALE—Model "B" Winton, 24-30-h.p., in fine condition, newly painted; will make bargain price to immediate buyer, as my Model "K" Winton has been delivered. Bargain, care WINTON COMPANY, 1706 Broadway, N. Y.

BULLOCK DUPLEX IGNITORS, latest pattern, fully guaranteed. We are overstocked and to make room for 1906 models will sell at one-third off regular prices. Cash with order, \$4.75 each. Discount to the trade. Address CENTRAL MOTOR-CAR SUPPLY CO., Central Trust Building, Cleveland, Ohio.

BAKER ELECTRICS—One each Runabout, Stanhope, Imperial and Surrey with top—returned from our European Branch—all new—at reduced prices to dispose of quickly. THE LOZIER MOTOR COMPANY, 55th street and Broadway, New York.

FOR SALE—Second-hand Automobiles from \$100 up; write us for prices and description, we can save you money. THE E. H. TOWLE CO., Waterbury, Conn.

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FOR SALE—Mason, 10 H. P. Steam Engine, new. A 1 condition, Price, \$50. New Locomobile, 4 H. P. Steam Engine, never been in a machine, Price, \$25. Victor Steam Water Pump, A 1 condition. Price, \$13. Victor, 4 H. P. Steam Engine, Price, \$12. Heavy Steam Running Gear, A 1 condition, Price, \$25. All kinds of Steam Parts. NORTH AVE AUTO EXCHANGE, 1423 North Ave., Bridgeport, Conn.

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The Week's Patents.

813,104. Sparking Device. Harry A. Miller, Los Angeles, Cal. Filed Jan. 14, 1905. Serial No. 241,004.

Claim.—1. An ignition device, comprising a plug, a spring-held reciprocable contact member, an oscillating contact member, a chamber communicating with the inner end of the plug, and a member contained in said chamber and exposed to the cylinder-pressure and serving to actuate said second-named contact member, for the purpose set forth.

813,025. Ice-Velocipede. Henry Schenckloth, Holstein, Iowa. Filed Oct. 17, 1904. Serial No. 228,696.

Claim.—1. The combination of a vehicle-frame, two shafts mounted in the vehicle-frame, means for jointly rocking said shafts, arms on the shafts, a lazy-tongs lever pivoted at one end of the machine frame, means for connecting said arms with the lazy-tongs lever to extend and to fold the lazy-tongs lever when the shafts are rocked.

812,937. Tachometer or Speed-Indicator. Vinzenz Koblizek, Salmthal, Austria-Hungary. Filed June 14, 1904. Serial No. 212,510.

Claim.—In a speed-indicator, in combination, a rotatable shaft, a stationary sleeve secured to it, and a second sleeve sliding on it, bowed springs carrying centrifugal weights uniting the two sleeves, an angular rack carried by the sliding sleeve, indicating mechanism actuated by the said rack, clappers projecting from the sliding sleeve, and a gong rotated within range of the same, substantially as described.

813,081. Sparking Igniter for Explosive-Engines. George Cormack, Jr., and Frederick C. Zum Dahl, Rockford, Ill. Filed Feb. 5, 1904. Serial No. 192,105.

Claim.—1. An igniter for gasoline-engines, comprising two points, one being movable, an arm having a connection with the movable point, and an operating-bar having one end provided with a notch forming two sections, said bar being movable transverse to its length to bring either section of the end under the arm, in order that the time of ignition may be changed.

813,396. Friction Clutch. Severin C. Anker-Holth, Riverside, Ill. Filed Nov. 1, 1905. Serial No. 285,376.

Claim.—1. In a device of the class described, in combination, a shaft, a friction clutch mounted thereon, said clutch comprising a loosely-sleeved driving member, a member rotatively fixed to said driving-shaft but longitudinally movable thereon, and means rotatively fixed to said latter member for engaging and disengaging the two clutch members, a driving-gear loosely sleeved upon said shaft, and a ratchet connection between said gear and friction-clutch, as and for the purpose specified.

813,397. Spring-Wheel for Vehicles. Jose G. Babio, Brooklyn, N. Y. Filed June 10, 1905. Serial No. 264,577.

Claim.—1. In a vehicle-wheel a hub and rim, said hub being provided with a central outwardly-directed annular web member, and said rim being provided with an inwardly-directed annular web member, spiral tension spring-spokes connecting said web members, and annular cover plates secured to one of said web members and inclosing the said spokes and the adjacent edge of the other web member, one of said parts, the rim of the hub being movable toward and from the other part, and the connection of the spokes with one of said web mem-

bers being a radially-movable connection, substantially as shown and described.

813,422. Self-Propelled vehicle. Hugh Hill, Anderson, Ind., assignor to Hill Standard Manufacturing Company, Anderson, Ind., a corporation of Indiana. Filed Mar. 20, 1905. Serial No. 251,045.

Claim.—1. In a child's cart, the combination of a longitudinal girder or frame member, a bearing for the driving-axle secured upon the under side of said girder, a pinion mounted on the driving axle in said bearing, another bearing for a supplemental gear-wheel mounted above the girder, and adjacent to the first-mentioned bearing, a gear journaled in said bearing meshing with the pinion, and struts rigidly connecting the two bearings to insure accurate centering of the gear and pinion, substantially as described.

813,456. Incandescent Igniter for Use With Internal-Combustion Engines. John W. Seal, London, England, assignor of two-thirds to John Bernard Langford, Chiswick, England. Filed July 25, 1904. Serial No. 218,056.

Claim.—1. In an incandescent igniter for internal-combustion engines the combination of an ignition-tube and a casing formed of a plurality of parts inclosing said tube, said casing of such form and size as to leave a space between it and the walls of the ignition-tube, the casing having a main passage adapted to direct the main volume of the gases into the ignition-tube, and having narrow side passages adapted to direct jets of burning gas against particular points upon the outer walls of the ignition-tube.

813,460. Metal Vehicle-Body. Hinsdale Smith and Arthur P. Smith, Springfield, Mass. Filed May 22, 1905. Serial No. 261,707.

Claim.—A metal vehicle-body having body-forming plates provided at their marginal borders with integral stiffening-flanges and reinforced-beads contiguous to such flanges.

813,461. Change-Speed Gearing. Howard R. Stacks, Philadelphia, Pa., assignor to Geo. V. Cresson Co., Philadelphia, Pa. Filed Nov. 29, 1904. Serial No. 234,746.

Claim.—1. In a change-speed gearing, the combination of a driving shaft, a driven shaft, a train of gears and a reversing means, a cam-shaft, means whereby a cam on said shaft may be caused to connect said first-mentioned shafts through said train of gears or not as desired, said reversing means comprising a double reversed cone-pulley and corresponding clutch members, a lever for shifting said cone to engage either of said clutch members, said lever being provided with a slot, a hollow hand-shaft geared to said cam-shaft, and a hand-shaft concentric with said first-mentioned shaft and having an eccentric-pin to engage said slot and said lever.

813,462. Turn-Table for Automobiles. Henry R. Stickney, Portland, Me. Filed Dec. 28, 1905. Serial No. 293,564.

Claim.—1. The herein-described turn-table for automobiles consisting of base having an annular track thereon, a series of rollers adapted to run on said track, an annular frame resting on said rollers, radial beams secured to the top of said frame, a central vertical pin secured to said base and forming a pivot for said frame to rotate on and a ball-bearing on the upper end of said pin for resisting the upward thrust of said frame.

813,477. Vehicle-Wheel Tire. Charles C. Worthington, Dunnfield, N. J. Filed Aug. 11, 1904. Serial No. 220,358.

Claim.—1. A vehicle-wheel tire comprising an inner circular band adapted to be secured to the body of a wheel and a surrounding resilient outer part, consisting of a plurality of arched spring-rods secured diagonally across the peripheral face of said band with the ends of their respective arches located on said band at fixed distances apart and the mid-portions thereof constituting a resilient wheel-tread.

813,524. Frame for Wind-Shields for Automobiles. James C. Simm, Jr., and Andrew P. Olson, Chicago, Ill. Filed July 17, 1905. Serial No. 270,148.

Claim.—1. A rectangular frame for transparent wind-shields comprising interiorly-slotted metallic tubular parts and means for making one of said parts adjustable upon and detachable from its adjacent parts, in combination with grooved parts of elastic stuff fitted in the bore of the tubular parts the grooves in the elastic stuff being of less width than the slots of the tubular parts and arranged to coincide therewith and form an open, straight elastic groove around the interior of the frame, as specified.

813,529. Tire. Russell G. Smith, Buffalo, N. Y., assignor of one-half to Auto-Car Equipment Company, Buffalo, N. Y., a corporation of New York. Filed Jan. 14, 1905. Serial No. 241,023.

Claim.—1. An emergency-tire, comprising a flexible band adapted to encircle a wheel-rim, a series of blocks or sections secured side by side to said band by fastenings passing through the band and into the blocks, and means independent of said fastenings for securing the tire to the wheel-rim, substantially as set forth.

813,536. Cylinder for Internal-Combustion Motors and the Like. Max Thier, Erfurt, Germany. Filed Mar. 28, 1904. Serial No. 200,448.

Claim.—1. In a cylinder for internal-combustion engines and the like, the combination with the body portion of the cylinder, of an interior lining consisting of a plurality of parallel parts, extending parallel to the longitudinal axis of the cylinder and means adapted to prevent a relative displacement of one part of the lining with respect to another, for the purpose as described.

813,541. Automobile. Frank M. Blair, Toledo, Ohio. Filed July 15, 1905. Serial No. 269,824.

Claim.—1. In an automobile, the combination with a running-gear comprising a rear axle having casing provided with a bearing extending forward radial to the casing, and with rotatable axles, a front axle parallel with the rear axle, a pair of springs fixedly mounted transverse each axle, and a main body-supporting frame having bars directly mounted and supported on the springs, of a subsidiary frame having its front end portion hinged at a plurality of points to the front end portion of the main body-supporting frame between the side bars, and its rear end extended to the rear axle and rotatably mounted on the radial bearing, a motor mounted on the subsidiary frame, a shaft connected to the motor and extending in direct line from the connection through the radial bearing of the rear axle, means connected to the shaft and inner axles adapting the shaft to rotate the axles, a sleeve mounted concentric to the shaft between the motor and the radial

bearing, and fixedly supported by the subsidiary frame, a radius-head rotatably mounted on the sleeve concentric to the shaft, and radius-rods diverging from the radius head and secured to the rear axle, 813,653. Carburetter. Fred A. Law, Hartford, Conn. Filed Apr. 10, 1905. Serial No. 254,847.

Claim.—1. A carburetter comprising an atomizing-chamber, an air-tube extending from the interior through the bottom of the chamber, a supply-tube for combustible located axially of the air-tube, a shell to fit the interior of the atomizing-chamber, endwise movable therein, there being air-ports through the wall of the chamber below the inner end of the air-tube and normally covered by said shell, the opposite end of the latter being closed; a valve for the supply-tube operable by the movement of said shell to vary the supply of combustible coincidentally with the opening of said air-ports, and suitable means to move the shell endwise.

813,676. Vehicle-Tire. George M. Stadelman, Akron, Ohio. Filed Apr. 26, 1904. Serial No. 205,010.

Claim.—1. In combination with the rim of a vehicle-wheel, a cushioning-tire upon said rim having its sides formed with circumferential retaining-band seats, retaining-bands extending about said seats, and rigid guiding means for said bands at the sides of the tire, unyieldingly supported on said rim and operating to guide said bands inwardly and downwardly against their seats and retain the tire in the rim-channel.

813,638. Carburetter. Earl E. Adams, Battle Creek, Mich. Filed Apr. 10, 1905. Serial No. 254,705.

Claims.—1. In a carburetter, the combination of an encircling gasoline-reservoir, a float-controlled valve to supply said reservoir, a central chamber suspended within said reservoir, a diaphragm having an opening separating said chamber into an upper and a lower compartment, an air-valve operative on and adapted to vary the openings in said diaphragm, a spray-nozzle opening upward in close proximity to said opening in the upper compartment, an air-inlet to the lower compartment, and means to control said valve and spray-nozzle, substantially as set forth.

813,684. Motor-Car for Preventing Side Slip. Thomas G. Allen, London, England. Filed Jan. 6, 1905. Serial No. 239,859.

Claim.—1. In a motor road-vehicle, a means for preventing unintentional operation of the steering-wheels during side slip, or the like, by utilizing the natural grasp of the operator to lock said steering wheels

relative to the vehicle body, comprising a steering mechanism, a steering-handle connected thereto, said parts being normally free to operate to turn said wheels, sufficiently close to said handle to permit both to be grasped by the same handle, it is rigidly connected to the vehicle-body when said handle and member are forcibly clasped by the hand.

813,730. Storage Battery. Adolph Muller, Berlin, Germany. Filed July 30, 1904. Serial No. 218,816.

Claim.—1. A battery-plate-support consisting of perforated covers provided with lateral loops, and having pins inserted through the loops, the relation of the loops being such that the pins lock the covers together, substantially as described.

813,736. Explosive-Engine. Gurdon Pendleton, Groton, Conn., assignor to The Thames Motor Company, New London, Conn., a corporation of Connecticut. Filed Aug. 31, 1904. Serial No. 222,826.

Claim.—1. In combination, a crank-chamber section, a cylinder mounted upon and depending within said section, a shaft revolvably mounted in said section, a piston in said chamber, said piston being formed with depending plate whose opposite edges are curved to conform to and engage the bore of the cylinder, a bar secured to the lower cross portion of said plate, with a space between them, and a crank and a traveler-block movable in said space and connecting the said plate and shaft.

813,746. Explosive Engine. Henry K. Shanck, Cleveland, Ohio. Filed July 20, 1903. Serial No. 166,233.

Claim.—1. In a twin-cylinder explosive-engine, the combination with the cylinders having closed ends, of duplicate compression-chambers independently mounted thereon and of predetermined less capacity than the cylinders therefor, each provided with a passage communicating with the front of its respective cylinder, an admission-port from each compression-chamber centrally placed in each cylinder between its ends, an exhaust port from each compression chamber centrally placed in each cylinder between its ends, an exhaust-port in advance of the admission, a communicating-chamber arranged to bridge the compression-chambers and the bridge-chamber, automatic valves therein, an elongated spraying-tube entering the bridge-chamber between the compression chambers, a valve at the outer end of the tube, air-inlets therefor, and a delivery-nozzle for the valve adapted to discharge vapor longitudinally of the tube, substantially as described.

813,770. Changeable-Speed Gearing. Ellis M. Burr, Champaign, Ill. Filed July 1, 1905. Serial No. 267,964.

Claim.—1. In a device of the class described, the combination with the bevel gear-wheel, of a bearing-sleeve pivoted on the axis of the wheel, a shaft journaled in said sleeve, a plurality of different-sized beveled pinions secured to said shaft, and means for holding said shaft with any desired one of said pinions in engagement with the wheel.

813,846. Odometer. Bernhard Volkmar, New York, N. Y., assignor to The Acme Auto-Meter Company, New York, N. Y. Filed Sept. 6, 1905. Serial No. 277,212.

Claim.—1. In odometers, a casing, a carrying-shaft, mounted for end and rotary movement in the casing, a set of registering-disks and a set of recording disks loosely mounted on the said shaft, one set of disks being independent of the other, each disk of both sets being provided with series of apertures in one of its faces, a ratchet-wheel loosely mounted on the said carrying shaft adjacent to the initial disk of each set, spring latch-arms secured at one end to the face of each disk opposite that containing the apertures, a similar arm being similarly connected with each ratchet-wheel, each of the said latch-arms having a bevel foot-section formed at its free end, and posts on said foot-sections adapted to enter apertures in opposing disks, fixed spurs located in the path of the foot-sections of the said latch-arms, a line-shaft, means for driving the line-shaft, and independent dogs carried by said line-shaft, engaging the said ratchet-wheels.

813,900. Protecting Device for Pneumatic Tires. Emile Lapisse, Elbeuf, France. Filed Sept. 2, 1905. Serial No. 276,828.

Claim.—1. A protecting device for pneumatic tires, formed by a strip of suitable material which is of sufficient width to wrap the cover of the pneumatic tire and to be secured between the flange of the rim and the flange of the said cover, and which is provided with flat heels practically at right angles with respect to the lateral portions; and hooking devices each composed of a metal plate having an outwardly-opening bight abutting on the flange of the rim of the wheel and provided with means by which it is secured to the flange of the protecting device.

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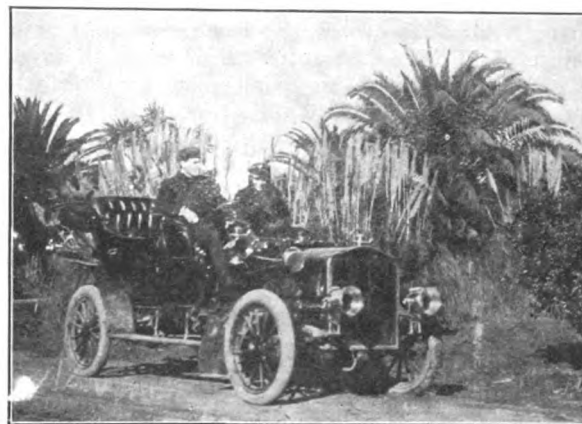
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This extensive European organization ensures that White tourists will receive abroad every courtesy and attention.

In addition to our European business, we have agencies in Japan, in Australia, in the Philippines, in Hawaii, and in Mexico. As an example of the importance of these agencies, we might call attention to the fact that there are more Whites in progressive Japan than all other makes combined.

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You'll want to know more of this wonderful car, because it is admittedly THE CRITERION to-day by which all other American cars must be judged.

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THE E. R. THOMAS MOTOR CO., 1416 Niagara St., Buffalo, N. Y.

Members Association of Licensed Automobile Manufacturers.

FORD SIX CYLINDER TOURING CAR

"Model K" 6 cylinders $4\frac{1}{2} \times 4\frac{1}{4}$ 40 H. P. Speed 50 miles, 114 Wheel Base. Magneto Ignition. Mechanical oilers, Wheels 34 in. Tires 4 in. Weight 2,400. Price \$2,500.

"Model K" is a luxurious touring car with a world of *reserve power*, with speed to meet every requirement, with an engine so simple, so smooth in its operation, that the presence of a motor on the car could almost be questioned. A car that embodies more advanced American ideas in automobile construction than any car ever built.

Not a copied car.

A car that is the growth of a lifetime of study and practical development in automobile construction.

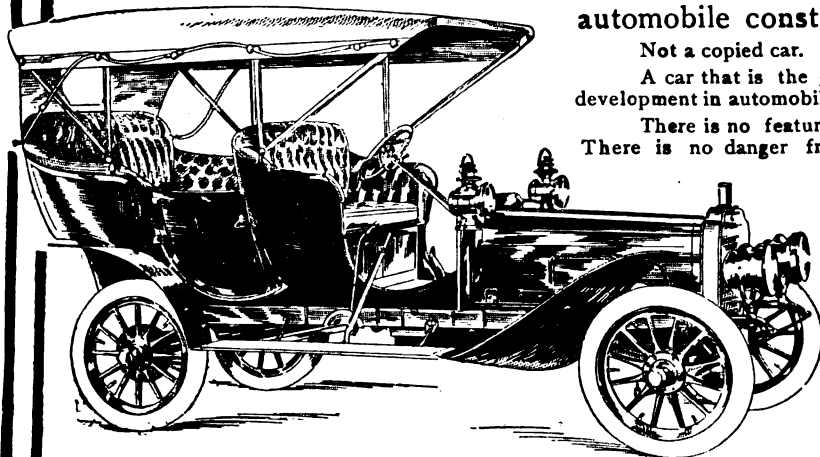
There is no feature of this car that has not been *worked out*. There is no danger from experiments. They are radical features, but they are *proven features*, backed up not only by the best mechanical views, but by *actual experiences*.

Let us give you a demonstration of this splendid car.

FORD MOTOR CO.
Detroit, Mich.

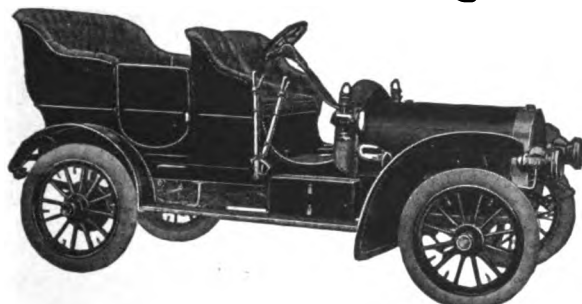
Members A. M. C. M. A., Chicago.

BRANCHES: 147-149-151-153 Columbus Ave., Boston; 1781-23 Broadway, New York; 725 Main St., Buffalo; Broad and Buttonwood Sts., Philadelphia; 1444 Michigan Ave., Chicago; 1913 E. Euclid Ave., Cleveland and 308-310 E. 11th St., Kansas City.
CANADIAN TRADE supplied by Ford Motor Co. of Canada, Ltd., Walkerville, Ontario.



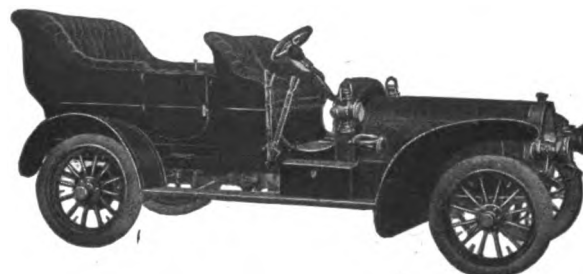


National



National Model D, 4-cyl., 35-40 H. P. Price, \$3,000.

National Model E is an innovation in touring cars that will be extensively copied. It is powerful, simply controlled, practically noiseless and its comfortable, roomy aluminum body seats seven passengers, all facing forward.



National Model E, 6-cyl., 50-60 H. P. Price, \$4,000.

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Write for Particulars.

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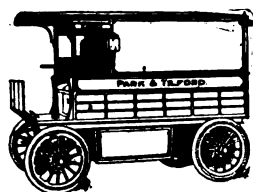


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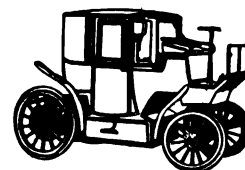
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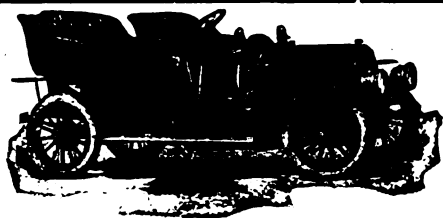
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Largest Builders of Commercial Automobiles in the World



IT IS NOW WELL KNOWN THAT THE ROYAL TOURIST

is the most reliable and most economical motor car built anywhere.
If you care to confirm this statement

ASK AN OWNER
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THE ROYAL MOTOR CAR CO.

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AGENTS: C. A. DUERR & CO., New York, N. Y.; G. J. DUNHAM, Boston, Mass.; THE McDUFFEE AUTOMOBILE CO., Chicago, Ill.; G. W. CAPLIN, Minneapolis, Minn.; AUTOMOBILE & SUPPLY CO., Ltd., Toronto, Ont.; MOTOR SHOP, Philadelphia, Pa.; REYBURN MOTOR CAR CO., St. Louis, Mo.; STANDARD AUTOMOBILE CO., Pittsburg, Pa.; AMOS-PIERCE AUTO CO., Syracuse, N. Y.; SCHOEFFEL CO., Rochester, N. Y.; ROYAL MOTOR CAR AGENCY, San Francisco, Cal.
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Aerocar



*The Car for today, tomorrow and years to come.
— Built by practical men —*

The one motor car driven by a reliable, test-proven, perfect air-cooled motor.

24 H. P. Five passengers. 45 miles an hour. Four cylinders. Weight under 2,000 pounds. Price, f. o. b. Detroit, \$2,800.

In the AEROCAR is given possibility to develop continuous higher power for the weight, greater speed, harmonious unanimity of work, smooth, consistent running, greater durability, positive reliability in case of operation and service, quick responsive control, infrequency of repairs, than is, or can be, given by any other motor car in the world.

Illustrated literature on request. Prompt shipment assured.

If there is no agency in your town you had better write us at once.

THE AEROCAR COMPANY, - Detroit, Mich., U. S. A.

Member American Motor Car Manufacturers' Association.

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"THE SIMPLE
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Built by Skilled Workmen from the
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THE SIMPLEST GASOLENE CAR IN THE WORLD

both as to construction and control and the easiest to
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"Marks a New Era in Automobile Construction."

40-45 Horse-Power \$5,000.

CORWIN MANUFACTURING COMPANY,
Peabody, Mass., U. S. A.



Wayne

We make a car for every requirement at a
price to suit every purchaser.

Simplicity is the keynote of Wayne design and in all our cars,
the one aim has been to get *all* the engine power to the wheels
without waste.

WHICH OF THESE SIX MODELS INTERESTS YOU?

Model F. Seven passenger touring car, 4 cylinder 50 h. p. motor - \$3500.00
(Limousine \$4500.00)

Model K. Five passenger touring car, 4 cylinder 35 h. p. motor - 2500.00

Model B. Five passenger touring car, 4 cylinder 24-28 h. p. motor - 2000.00

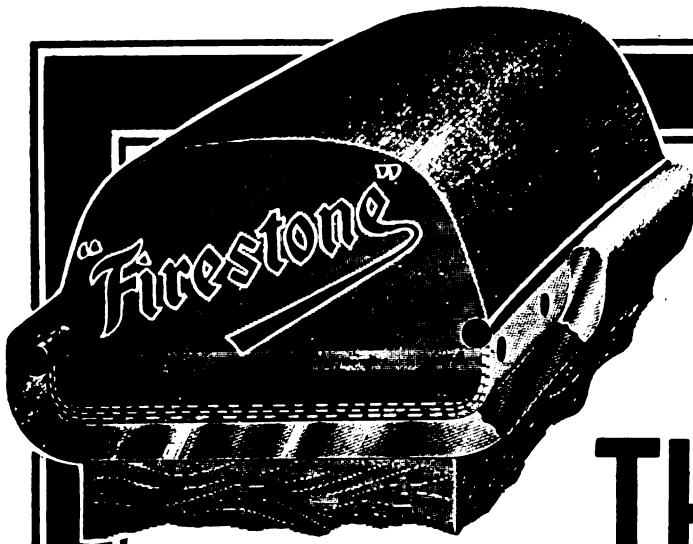
Model C. Five passenger family car, 2 cylinder opposed 20 h. p. - 1250.00

Model G. Five passenger family car, 2 cylinder opposed 14 h. p. engine under hood - 1000.00

Model H. The business man's two passenger runabout. Same engine as Model G. - 800.00

Let us send you catalog and full particulars about any of these cars.

WAYNE AUTOMOBILE CO., Dept. 4, Detroit, Mich.



MORE THAN 85%

of all rubber tires used on commercial automobiles in this country are FIRESTONE TIRES. This is not guess-work. We can prove it. You can prove it to your own satisfaction by observation and actual count of the first hundred commercial automobiles you see.

THE FIRESTONE SIDE WIRE SOLID TIRE marked an era in tire building.

They never come off the rim no matter how heavy the load or severe the service.

They are built upon honor, of the choicest materials that money can buy and with the best skill to be found anywhere.

Their wearing qualities cannot be excelled. These are the reasons why FIRESTONE SIDE WIRE SOLID MOTOR TIRES are used more than all others.

Then Why Not Firestone?

FIRESTONE TIRE & RUBBER CO., - Akron, Ohio.

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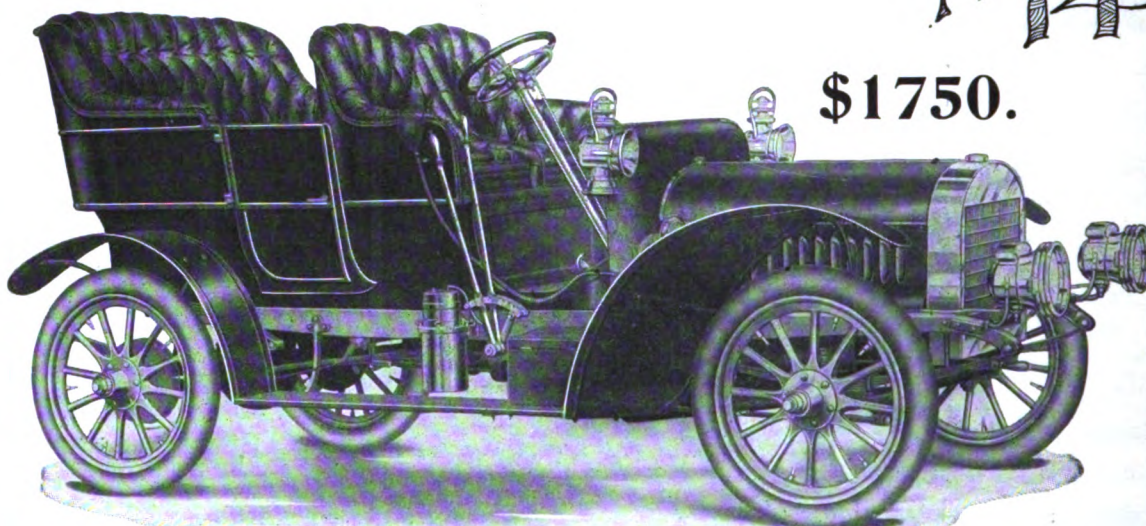
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Rambler

Model
14

\$1750.



It was generally conceded the financial proposition of both shows.

It is a medium weight touring car, strictly modern in design, equipment and appointments.

The logical result of years of study and development in the direction of simplicity in design and structural economy.

The power plant comprises a four cylinder vertical motor with sliding gear transmission and shaft drive.

The accessories, such as carburetter, igniting, lubricating and cooling systems, are all the latest and most approved types.

Only the concentrated efforts of a large and perfectly equipped organization render possible the production of such a car at such a price.

Not only is the first cost attractive but the structural simplicity assures the minimum expense of care and upkeep.

Your most critical inspection is invited and our catalog, giving full details, is at your service.

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THE MOTOR WORLD.

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE
AND KINDRED INTERESTS

Volume XII.

New York, U. S. A., Thursday, March 15, 1906.

No. 7

EXTENT OF LICENSED TRADE

Sworn Testimony Brings out First Authentic Figures—1905 Output, 17,000 Cars.

For the first time, figures which afford a definite and authentic idea of the production of American automobiles and of the growth of the industry during the last three years, were disclosed last week by M. J. Budlong, president of the Electric Vehicle Co. The figures came out in the course of Mr. Budlong's testimony in one of the proceedings in the United States Circuit Court involving the Selden patent, in which he had been called to testify to prove the extent to which that patent had been recognized.

According to these sworn figures, the total number of automobiles manufactured and imported under license, from January 1, 1903, to January 1, 1906, was 41,696.

The valuation of these cars was \$63,141,437.22 and the royalties paid on them to the Association of Licensed Automobile Manufacturers was \$814,183.52. All of the figures given represent cars actually sold.

The increase of production in 1904 over 1903 amounted to 30 per cent. in the number of vehicles, and the increase in the value of the gross sales was 58 per cent.

The increase of 1905 over 1904, in the number of vehicles, was 32.5 per cent., while the increase in the value of the product sold rose to 66.2 per cent.

The total business in 1905, according to the testimony, amounted to 17,840 vehicles, having a valuation of \$31,814,758.99.

These figures reveal some averages of peculiar interest. Taking the total number of cars produced by the licensed makers and their selling prices, it is shown that the average selling price for cars of all sorts in 1903 was approximately \$1,170. In 1904 the average price was \$1,422. In 1905 it was \$1,784. For the three years, 1903, 1904 and 1905 the average selling price of domestic cars was \$1,429, and of imported cars \$6,710. The latter figure gives a clue to the number of foreign cars included in the statistics, which works out at about a round thousand.

Heretofore, the estimates of the country's production that have appeared have been merely wild guesses and while Mr. Budlong's figures have given rise to a crop of similar estimates of the output of the independent manufacturers, the crop is more chaff than wheat, although it is fairly safe to say that the independent production during 1905 did not exceed a total of 15,000 cars, making it reasonably certain that the entire output for the year was about 32,000 vehicles.

Selden Show Profits \$60,000.

Despite the smaller number of exhibitors and the unusually heavy expense necessitated by the elaborate decorative scheme, it was authoritatively announced last week that the net profits of the A. L. A. M. show in Madison Square Garden in January last, were in excess of \$60,000, the exact figures not being given. The Garden management and the A. L. A. M. each received more than \$30,000. The profit of the association was rebated to the vehicle exhibitors entitled to share in it; the rebate amounted to 60 cents a square foot, or about 35 per cent. of what they paid for exhibition space. The show committee, consisting of Colonel George Pope, Marcus I. Brock and C. R. Mabley, was not discharged, but was continued in office.

Mitchell to Build Big Factory.

In July next, the Mitchell Motor Car Co. will begin the erection of a new and modern factory at Racine, Wis., the plans and specifications of which have just been completed. The building will measure 400x120 feet and will be of cement construction with steel window sills, fireproof glass and all other latter-day conveniences and safeguards.

Miller Renews Brampton Rights.

Charles E. Miller will continue to control the Brampton chain in this country. He renewed his contract during the recent visit of Charles Brampton, who sailed for home last week. Miller's new contract is broader than the old one in that it permits him to establish selling agencies for the chain throughout the United States.

SHOW SITUATION IS RELIEVED

N. A. A. M. Resolution not so Drastic as Appeared—Chicago the Key to Situation.

While the action of the executive committee of the National Association of Automobile Manufacturers at its meeting last week in resolving that "no show be hereafter sanctioned except one annual show each in New York and Chicago," appeared to eliminate local shows, it is learned from an authoritative source that such is not the intent of the resolution.

The misunderstanding likely to result dawned on some of the members of the N. A. A. M. after the meeting had adjourned and they got together in an effort to make the situation clearer. The effect will be disclosed at the April meeting of the executive committee. Meanwhile it is known that the resolution meant to convey only that henceforth the N. A. A. M. will have to do only with national shows; it will pursue a "hands off" policy so far as local exhibitions are concerned and they may be undertaken without let or hindrance, save that the manufacturers themselves will have nothing to do with them; if their agents exhibit their cars no objections will be interposed, but the agents must bear any and all expense that may be incurred.

So far as the national shows are concerned, the situation created by the resolution is a pretty one. As the members of the Association of Licensed Automobile Manufacturers have the controlling vote in the N. A. A. M., and as the licensees' lease of Madison Square Garden has another year to run, it is beyond the bounds of belief, as the Motor World said last week, that any other show in New York will be sanctioned. This means that only licensed cars will be exhibited in New York in 1907 and as immediately after last week's meeting, the N. A. A. M. renewed its contract with S. A. Miles covering the Coliseum and First Regiment Armory in Chicago, any manufacturer who may exhibit at any other show that may be undertaken in New York or at the outdoor show projected for this fall by the American Motor Car Manufacturers' Association, will find the Chicago show

closed to them. The resolution makes plain that if the Automobile Club of America conducts a show in New York next January it will not be sanctioned; the club show of this year was sanctioned, as will be recalled, and the exhibitors there were thereby enabled to obtain space in Chicago. Chicago is thus made the key to the whole situation. It is known, of course, that the American Motor Car Manufacturers' Association is proceeding with its out-door show project without any idea of the N. A. A. M. or its sanctions in view, but a member of the latter prophesied last week that there would be so few 1907 models ready for staging in a show held in October of 1906 that there will be many makers who will turn longing eyes toward the Chicago in February next.

After the adjournment of the N. A. A. M. meeting last week, it also leaked out that the matter of again admitting new members had been discussed and that action of some sort that will at least partly reopen the door is in prospect.

Looking into Pekin for Factory Site.

Pekin—Illinois, not China—is on the verge of securing a new industry, a factory for the manufacture of automobiles. Two "gentlemen"—their names are not given—have been in the place for several weeks, looking over prospective sites, and finally have come to the conclusion that Pekin is just the place they want to locate. A committee, however, consisting of H. G. Hergert, James W. Barrett and Herman W. Hippen, has been looking into the merits of the motor company which desires a location, and much will depend upon their report.

End of the Black Diamond.

At last, Judge Ray has granted an order dismissing the bankruptcy proceedings begun on July 25 last, against the Black Diamond Automobile Co., of Utica, N. Y., by creditors of that city and elsewhere. There was no opposition to the dismissal of the petition. The order also discharges the temporary receiver, Charles G. Irish. It is understood that the liabilities of the defunct company have been settled.

Snutsel will Sell Supplies.

The Snutsel Auto Supply Co. has been incorporated and has opened offices and salesrooms at 1534 Broadway, New York City. The company will manufacture, import and export supplies and will do both a wholesale and retail business. Paul L. Snutsel is president and general manager; Joseph C. Hoffman, vice-president, and Rudolph Weinacht, secretary and treasurer.

Shifts in the Napier Staff.

L. Le Roy Moody, formerly with Norris Mason, is the new manager of the Napier Motor Car Company of New York. Walter H. Woods, the former incumbent, has been made secretary and treasurer of the main company.

In the Retail World.

Burlington, Wis., is to have a garage. Swibel Brothers are preparing to furnish one in connection with their machine shop on Chestnut street.

F. E. McLeary will soon commence the erection of a steel and concrete garage at Farmington, Maine. It will stand on Broadway and have a frontage of 23 feet.

The South End Automobile Company has established itself at Nos. 7 and 9 Wright street, Newark, N. J. It will handle the Walter car, which will soon be made in Trenton.

Wehrfreitz & Quallo is the name of a firm that has started in business at 150 Mulberry street, Newark, N. J. The firm will make automobile trimmings and upholstery.

The Lambert friction driven car has made its debut in Middletown, N. Y. Sayer Fancher has taken the agency on the strength of having sold two of this year's models.

F. E. Bolan Motor Co. is the name of a new concern that opened up in Newark, N. J., last week. It has located at 239 Halsey street, and will handle the National, Wayne and Hotchkiss cars.

The Cadillac Company of New York, will move into its new garage at Broadway and Sixty-second street, New York City, on Thursday of this week. The added room has long been needed.

Julius Ruff and Emil Schuester have rented the former Homan & Schultz garage in West 38th street, New York, and will trade as the Auto Renting Co. Cars for rent will be kept on hand day and night.

General Andrew Welch, one of the oldest and largest carriage and hardware dealers at Aurora, Ill., has followed the wind-blown straws. He has taken the agency in that place for Cadillac and Studebaker cars.

Carl N. Richardson, of Athol, Mass., has bought a half interest in the garage of John Manly. An enlargement is in contemplation that will more than double the floor space, making the building 160x36 feet.

Last week the Greene Motor Car Co., Newark, N. J., agents for the Locomobile, moved into its well appointed garage at 88-90 Washington street, where it will be permanently located. It was formerly located at 222 Halsey street.

An overheated stove in the repair room of Sague & Sons's garage, at Poughkeepsie, N. Y., last week, caused slight damage. Several valuable cars were stored in the building, but were gotten out before the flames gained headway. Three hundred dollars will cover the loss.

Crossed electric light wires, it is thought, started a fire which destroyed the Fashion Automobile Garage, at 4212 Cottage Grove avenue, Chicago, Wednesday of last week, 7th inst. Fourteen cars were burned, entailing a loss of approximately \$10,000; the

building was damaged to the extent of \$2,000.

Although it was supposed that the idea of rapid transit in Nyack, N. Y., and vicinity had been abandoned, such seems not to be the case. The Rockland Motor Co., last week purchased an Oldsmobile stage, with a capacity of twelve passengers, and will soon begin operations.

The Week's Incorporations.

Laporte, Ind.—The Automobile Maintenance Co., under Indiana laws, with \$5,000 capital. Directors—John Wolf, Alexander Lindgren and Martin Weber.

Meridian, Miss.—Meridian Auto & Cycle Co., under Mississippi laws, with \$10,000 capital; to deal in automobiles, etc. Corporators—Theodore Sturgis, R. G. Mynton, et als.

Milford, Mass.—Milford Automobile Co., under Massachusetts laws, with \$10,000 capital; to deal in automobiles. Corporators—W. Hadley, Hopedale; and W. H. Baker, Milford.

Bergen, N. Y.—Apex Motor Co., under New York laws, with \$15,000 capital; to make automobile motors, etc. Corporators—A. A. Sands, G. E. Parish, Bergen; F. O. Bullis, Rochester.

Chicago, Ill.—Webb & Pine Automobile Co., under Illinois laws, with \$2,500 capital; to manufacture automobiles and accessories. Corporators—William Friedman, Harry A. Riley and Morris Friedman.

New York City, N. Y.—The Mutual Auto Accessories Co. of America, under New York laws, with \$10,000 capital. Corporators—T. R. Nesbit, S. A. Houch, F. J. Wallace, all of New York City.

Rutherford, N. J.—Waller Motor Co., under New Jersey laws, with \$5,000 capital; to make automobiles. Corporators—William E. Waller, Elwood F. Waller and John M. Bell, all of Rutherford.

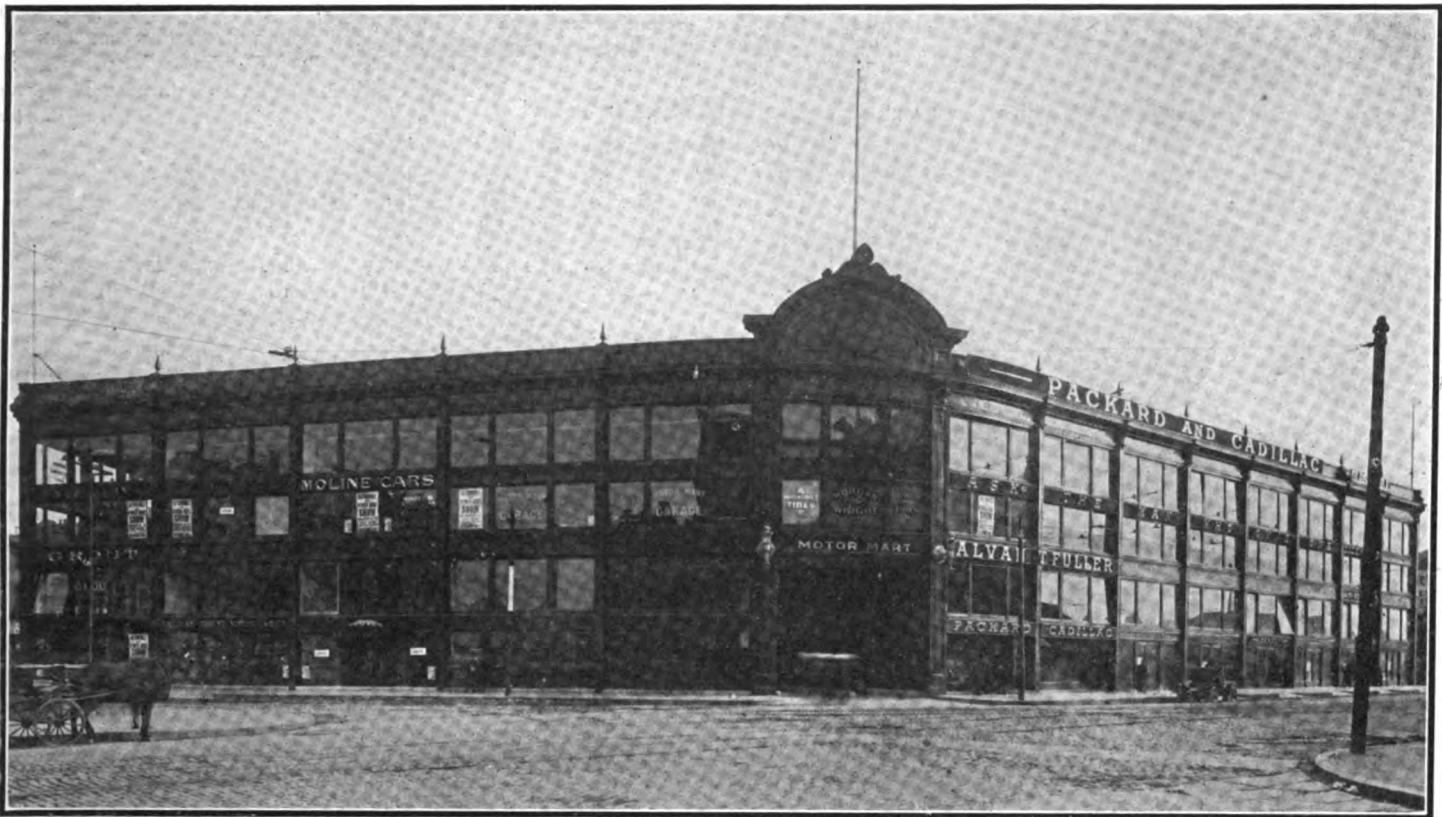
Bridgeport, Conn.—Bridgeport Vehicle Co., under Connecticut laws; to make automobile parts. Corporators and officers—Henry H. Miller, president and treasurer; H. F. Brandes, vice-president, and T. C. Miller.

Camden, N. J.—Camden & Atlantic Automobile Co., under New Jersey laws, with \$25,000 capital; to make automobiles. Corporators—L. Dare Ginhart, Jr., Charles Summer Wesley and M. Leon Berry, all of Camden.

Boston, Mass.—Boston Mechanical Co., under Massachusetts laws, with \$200,000 capital; to deal in automobiles. Corporators and officers—C. F. Whitney, Newton, president; H. E. Whitney, Cambridge, treasurer and clerk.

Utica, N. Y.—Powell Muffler and Timer Co., under New York laws, with \$5,100 capital; to make mufflers, timers and cut-out switches for automobiles. Corporators—W. S. Foster, W. B. Foster, J. J. Radt and G. A. Bowman, Utica; H. S. Powell, Clinton.

Boston's Mammoth Motor Mart.



TWENTY-ONE CONCERNS HOUSED IN ONE BUILDING.

Features of the Motor Mart.

Boston has taken a lead in centralizing the automobile dealers of the Hub in the erection of the "Motor Mart" which is illustrated by the accompanying photograph, and in so doing has probably set an example which will be followed in smaller cities that do not boast of an extended "automobile row." As already chronicled in these columns, the building is constructed of steel, concrete and glass and occupies a complete block, facing on Park Square and bounded by Columbus avenue, Church, Tennyson, Pleasant and Elliot streets, which permits of unusual lighting, as well as facilities of access. It is four stories in height, each of which has 47,000 square feet of floor space, the first one being entirely of concrete. No space is taken up by elevators, their place being supplied by special hoists in the rear of the building for each salesroom. In all, it shelters no less than 21 independent salesrooms of no mean proportions, likewise a garage which is a virtual building within a building, comprising 20,000 square feet of floor space and with a capacity of 300 cars. In addition to being the most modern building of its kind, it is likewise the most complete, including even a branch postoffice and a restaurant within its walls. Although it was only thrown open a fortnight since, many of the salesrooms are already occupied by

the representatives of well known cars, among whom are the Packard, the Cadillac, the Olds, the Corbin, Acme, Northern, Grout, Waltham-Orient and Glide, as well as some accessory makers, prominent among which are Morgan & Wright.

Standard Increases Capital and Plant.

The capital of the Standard Roller Bearing Company has been increased from \$2,000,000 to \$3,500,000. This increase in their capital has been required to provide for an enlargement in their factory and equipment. A four-story factory, 150x200 feet, will be erected immediately for the manufacture of annular ball bearings, on which this company claims basic patents.

During the past year, the Standard Company have equipped with machinery, a four-story building, 95x200 feet, and have also built and equipped an iron foundry, 70x150 feet, two-stories in height; hardening and tempering building, 70x150 feet.

The Kinsey Mfg. Co., Dayton, Ohio, this week placed their Eastern sales agency with T. J. Wetzel, of New York, and the Western agency with K. Franklin Petersen, of Chicago. To their line of radiators, oilers, hoods, fenders, tanks and the like, the Kinsey people have just added pressed steel frames.

New York Trade Carnival in May.

At a meeting of the New York Automobile Trade Association held on Monday evening last, it was definitely decided to hold the proposed "Spring Automobile Carnival" or open air show at Empire track, on Thursday, Friday and Saturday, the 24th, 25th and 26th of May next. It was also decided that the affair should be fostered entirely by local agents, and in consequence Percy Owen, who was appointed chairman of the special committee having the matter in charge, resigned in favor of Frank Abrams, owing to his affiliation with the National Association. It is generally understood that the management will be in the hands of Alfred Reeves.

France's Export Tops Twenty Millions.

According to the returns just published, the total value of the exports of motor cars from France for last year showed a gain of more than \$5,800,000 over those of 1904, and more than \$18,000,000 over those of 1900. The actual values given are: for 1905, \$20,080,000; for 1904, \$14,260,400; and for 1900, only \$1,883,400. The distribution of the total returns for 1905 is given as follows: England, \$8,514,400; Germany, \$2,440,000; Belgium, \$2,082,400; America, \$1,329,400; Italy, \$966,800; Algeria, \$732,800; Argentina, \$625,000; Spain, \$506,000, and Switzerland, \$383,400.



THERE IS BEAUTY IN

FISK TIRES

Their many marked virtues need only a glance to be recognized. THEY WILL BE CHEERFULLY DEMONSTRATED UPON APPLICATION, BY ANY OF OUR REPRESENTATIVES.

FISK BRANCHES...

NEW YORK: 754 Seventh Ave.

BOSTON: 239 Columbus Ave.

SPRINGFIELD: 135 Bridge St.

PHILADELPHIA: 138 N. Broad St.

MINNEAPOLIS: 704 Hennepin Ave.

ATLANTA: 103 N. Pryor St.

SYRACUSE: 423 S. Clinton St.

BUFFALO: 893 Main St.

CLEVELAND: 318 Euclid Ave.

LOS ANGELES: 1034 Main St.

DETROIT: 262 Jefferson Ave.

CHICAGO: 1251 Michigan Ave.

KANSAS CITY: 1330 Main St.

ST. LOUIS: 3908 Olive St.

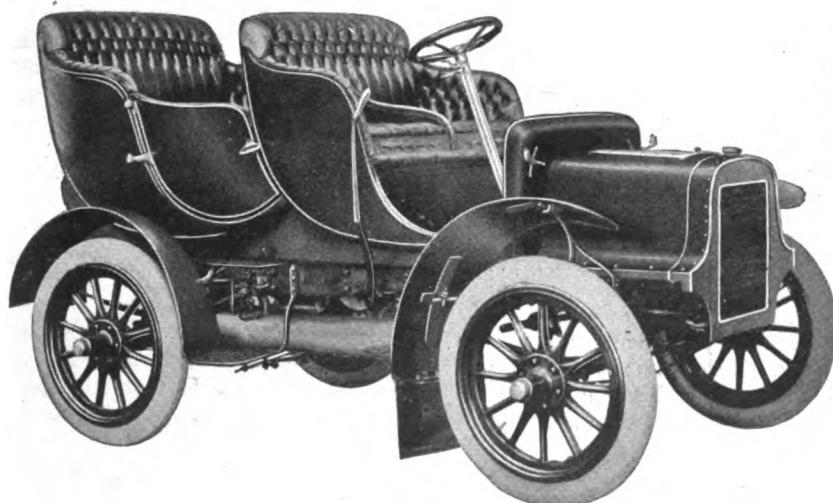
SAN FRANCISCO: 114 Second Ave.

IF YOU DESIRE TIRES THAT WILL BE EASY ON YOUR CAR, COMFORTABLE AND UNANNOYING TO YOU, BESIDES ABSOLUTELY SAFE, SEE THAT YOUR EQUIPMENT IS "FISK".

Write us for a copy of "Tire Talk"

The Fisk Rubber Company,

CHICOPEE FALLS, MASS.



CADILLAC

MODEL M

\$950.00 F. O. B. Detroit

The worthy successor of our 1905 Model F, of which more were made and sold last year than any two other models combined.

The following letter is one of many which shows WHY:

Cuba, N. Y., January 30, 1906.

"CADILLAC MOTOR CAR Co., Detroit, Mich.

Gentlemen:—September 1, 1905, I purchased from the Centaur Motor Co., Buffalo, one Model F Cadillac. This machine I have used for livery and have made upwards of 2,000 miles. It has not caused one moment of trouble or one cent for repairs. It has made all the hills in this section, which are very bad, with perfect ease, no matter what the load might be. When I purchased it I did not know any more about a machine than a boy of ten years, but found it to be very simple in every detail. I cannot speak too highly of the Cadillac, it is certainly a winner.

F. L. HALLACK."

IS IT ANY WONDER THAT CADILLACS SELL?

CADILLAC MOTOR CAR CO., - - - Detroit, Mich.

Members Association of Licensed Automobile Manufacturers.



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The Subject of Searchlights.

Ever since the time of the first application of the really powerful searchlight to the motor car, there have been numerous complaints coming in a never ending stream from one quarter or another, and all to the same effect, namely, that the use of such lights on the public highway is on occasion a menace to the safety of the public, notwithstanding the fact that their primary intent is simply that of safeguarding the general public and the occupants of the car from injury. Many suggestions have been offered as to possible methods of ameliorating the evil, ranging from the establishment of compulsory screen laws, the use of shades, adjustable shutters, and even the abolition of such lights, to an appeal to the milk of human kindness in the heart of every driver, and a citation of his obligation to the public to make its use as little obtrusive as possible.

As a matter of fact, very few of these suggestions have been of any practical value, since they all tended more or less either to partially curtail the use of the

light when needed, or else to outlaw its use altogether. An entirely novel suggestion has recently been made, however, and one which is deserving of especial consideration in this connection, in that it in no way contemplates the impairing of the efficiency of the lamp any time. It proposes the placing in front of the outer lens of screen made up of plano convex vertical lenses constituting a means of disseminating the light in a broad band near the lamp and thus removing the glare from the track at all points save directly in front of and at a short distance from it. In this way, every ray of light would be utilized in illuminating the course of the car, and the nuisance to opposing traffic thus greatly abated, if not wholly removed.

A similar method is applied to the searchlights of vessels when entering harbors, to remove the inconveniences and dangers to other shipping, and it is even made compulsory on all vessels passing through the Suez Canal. The method is simply that of temporarily shortening the focus of the beam of light and distributing it broadly over a closely adjacent plane, instead of concentrating it on a distant one. All the other methods which have been suggested up to this time, so far as is known, have involved either the partial screening of the light, and hence, the loss of a certain amount of its power, or else its deflection to a point near the front of the car where it would be concentrated on so small a field that much of its value would be wasted.

One point which should be brought out in this connection is that when the car is moving through traffic or in districts where a slow rate of speed is necessary, it is frequently of greater advantage to have the proximate field brilliantly illuminated, than to have that at some distance lighted more brightly. In this way the driver is enabled to see the course directly before him with great distinctness, and to guide the car with much greater discretion than otherwise. The use of such screens on touring cars, would enable the operators to throw a broad, well distributed light on the road when a bad spot is encountered, thus furnishing a better means of getting over rough country than is to be found at present even when one of the two headlights is focused close to the front of the car.

Such screens could be easily constructed, should not prove tremendously expensive, and should be fashioned readily enough so that they could be brought into the field of the light by a simple movement from the

driver's seat. And what is more to the point, they would serve if considerably used, to do away with the nuisance and danger of the searchlight whenever necessary without at the same time interfering with its full value when its long range is needed.

Possibilities of the House Car.

Ever since the early days of the stage coach of old, cartoonists have had a habit of depicting from time to time, a monstrous vehicle fitted and furnished with all the comforts and conveniences of home, and constituted as a traveling domicile. With the advent of the motor car, the limitless possibilities of caricature were drawn upon still more frequently in the production of ideal house cars, until finally it came to pass that a French enthusiast had constructed according to his own design just such a contrivance as had been shown in the earlier humorous prints. For it has ever been that the caricaturists have been the leaders of fashion.

Despite the fact that the several attempts which have been made to construct house cars, and pullman cars, and camping cars, have not achieved any particular degree of notoriety, there is doubtless a not inconsiderable field in just that line awaiting development. The freedom of the motor car from the restraints of the rail, its unconventionality, and the unlimited possibilities of exploration which it unfolds, coupled with the increasing tendency to long tours, make the utility of such machines distinctly apparent. Taking the form of camping cars, equipped with all the paraphernalia of the wayside bivouac, the ideal thing for hunting and exploring parties is developed, where the element of give and take of the out-of-door camp is not to be considered. Taking the form of the caravan, motor driven, equipped for comfort first of all, and making the question of speed but a secondary consideration, a most delightful mode of country travel is obtained, without any of the drawbacks usually attendant on motor touring due to the exigencies of life at country hotels.

The purely ultra types of pullman limousine have proved themselves to be of but little real value to the motorist. They are expensive in first cost and expensive in maintenance, and after all, serve a none too useful purpose. The house car, on the other hand, mounted on such a chassis as is now commonly used for the gasoline driven truck, furnished with a rather plain body,

and fitted up in the same general style as is employed in small cruising boats, should not be nearly as expensive, either in cost or operation, and should yield its owner a far greater amount of enjoyment.

Such a machine, furnished with a four-cylinder motor of not more than twenty horsepower, having the driver's seat mounted over the bonnet, and having a chassis giving from 6 to 8 feet of room in the clear, should provide ample room for a folding berth on either side, possibly for two tiers of berths, a diminutive kitchen outfit, to say nothing of the folding tables and desks now in common use. Ample accommodation for luggage and supplies could, of course, be found on the roof, and at the rear. By sacrificing something in finish and suiting himself with a plain oak interior and an exterior distinguished for its plainness, the owner of such a machine could probably build and equip such a caravan at a cost hardly greater than that of one of the most elaborate limousines in everyday use.

The range of possibility in this line is infinite, and to carry it into any detail is but a useless flight of the imagination, yet that there is more than idle fancy in the idea is at once apparent, and that the day of the house car may yet arrive seems not at all improbable.

Brakes and their Application.

It seems not a little strange that considering the present status of motor car design in other lines, the braking equipment should still be confined to the somewhat narrow limits which have been adhered to since the commencement of the industry. Up to the present time, the makers have confined themselves simply to the improvement in detail of the existing types of brakes, making them universally double-acting, and providing means of equalization in cases where two or more are applied by a single lever. These, coupled with the very general tendency to increase the area of effective working surface which has been manifest lately, have constituted the entire range of improvement. The brake itself, and the point of its application remains unchanged. Either the rear wheels are braked directly, or else the effort is applied somewhere in the line of transmission.

It is commonly conceded that the stoppage of the rotation of a wheel under certain conditions causes it to lose its sense of direction, which is natural enough, since

all bodies tend to move along the lines of least resistance. Hence, when the road is pitched to one side, or when there is a side thrust from any cause whatever, the consequence is that when the brake is applied, a side-slip is developed. The tendency to this is at once augmented by the fact that the machines swivels about the front wheels as an axis, and, in cases where the braking effort is applied in any way which brings the differential into play, this is doubly accentuated by the tendency of the wheel having the least tractional resistance to advance in an oblique direction pulling the rear of the machine along with it.

It is perfectly rational to suppose that this tendency would at least in some measure be checked by applying the brakes to the front wheels, yet on the other hand, the effect of this would be such that in case the machine were given a slight incline to its original direction of travel, as for instance, by a swerving of the steering wheels, the momentum of the rear end would tend to swing it around and thus cause a slewing of the rear end closely analagous in its nature, and identical in its effect with that caused by skidding. Hence, it would not seem that much, if anything at all was to be gained by applying the brakes to the front instead of the rear wheels.

Again, applying them to all of the wheels simultaneously, would apparently tend to place the machine quite out of control of the operator, since all four wheels would tend to lose their sense of direction and the machine would follow the lines of least resistance, traveling sidewise, or obliquely, or in fact, any old way at all, except in a straight line.

If, on the other hand, they were to be applied to one front and one rear wheel, it would seem, in theory, at least, that while the sense of guidance would be retained by the two free wheels, the other two would have sufficient traction to accomplish the desired retarding effect. If the two impeded wheels were on the same side of the car, then the possibility of one track being more slippery than the other would seem to create a tendency to creep, while if the two were on opposite sides, it would naturally seem that the relative advantages or disadvantages of grade pitch and traction resistance would be counterbalanced on the two sides of the vehicle and the natural resulting tendency would be to maintain the machine in a straight course.

Working along this somewhat novel line of argument, a writer in a foreign contem-

porary gives the results of sundry experiments which he has conducted with a model which have seemed to bear out the theory that the ideal method of applying the brakes would be upon the opposite front and rear wheels. Also, he states that he has been unable to put his theory to a practical test, but has "contented himself with taking out a patent on the idea." This, however, need not act as a deterrent upon designers in hindering them from making experiments along a line which up to the present time has yielded but partially successful results.

The idea of applying the brakes to the opposite wheels at each end of the machine is unsymmetrical, unmechanical, and without analogy in the world of traction, and yet, if by such means it can become possible to obviate the difficulties and dangers due to skidding, then the first two objections are of but little moment; the third need not necessarily apply at all, since wholly novel considerations are involved which defy all precedent at every turn. But at all events, there seems to be considerable food for thought in the very idea, and it is not unlikely that a series of experiments conducted with a view to bringing out the success of the system, might lead to the establishment of certain data in the matter of adhesion and traction, to say nothing of the distribution of weight in the vehicle, which would well repay the investigator for the time taken up by the study.

It is unfortunate for many reasons that more data was not compiled regarding the capacity and performances of the cars of half a decade ago. Not merely to demonstrate in black and white the vast improvement that has been brought about in the interim—this is sufficiently in evidence and scarcely needs any written substantiation to make plain its extent, but to show more clearly just what is responsible for the advance. And in no other particular is this lack of information so keenly felt as in the item of fuel consumption. Some of the old-time motors developed an insatiable thirst, it is true, but in the majority of instances, the price of the fuel went into the chauffeur's pocket and so its cost seldom if ever had any bearing on the mileage covered. Owners were blissfully ignorant of what the car would do on a gallon of gasoline and never questioned the bills so that was an end of it. In consequence, with the exception of the records of one or two early economy trials, there is no data extant that can be brought to bear on the subject.

FARSON SELECTS HIS STAFF

Stranger for Racing Board and New Men for other Committees—Platform Outlined.

President John Farson, of the American Automobile Association, gave unmistakable evidence that he believes in the proverb

vigorous policy will be pursued, with two objects in view—better roads and universal automobile legislation.

Contrary to general expectations, Robert Lee Morrell was not reappointed chairman of the racing board. Mr. Morrell had steadily maintained that he would not accept the honor again, but it was thought

Augustus Post retired as chairman of the racing committee, being succeeded by Paul Deming of the Detroit Automobile Club. Judge W. H. Hotchkiss, of the Buffalo Automobile Club, will head the highway committee for the ensuing year and Sidney C. Gorham, the new secretary of the A. A. A., takes J. B. Dill's place on the law com-



PRESIDENT FARSON AND SECRETARY GORHAM OF THE A. A. A.

"a new broom sweeps clean," for at the first meeting of the new board of directors at the rooms of the Automobile Club of America, last Thursday, 8th inst., he swept out such men as Messrs. Morrell, Post, Shattuck and Dill and appointed new chairmen for the Racing, Touring, Highway and Law Committees. Mr. Farson was unable to be present at the meeting, but sent a letter, which further showed that energy to obtain practical results will be the chief characteristic of the A. A. A. this year. A

that pressure would be brought to bear upon him to fill the position this year. His successor, Jefferson DeMont Thompson, is as much of a "dark horse" as was Mr. Morrell upon his appointment last year. Mr. Thompson is a business man and a member of the Automobile Club of America, owns three or four foreign cars and has witnessed nearly all the important speed contests abroad. He is against track racing, but favors beach carnivals and the Vanderbilt cup race, as a matter of course.

mittee. The appointments were made in a letter to Secretary Gorham and were ratified by the board of directors.

President Farson outlined the platform of his administration in the following letter to the directors:

"I would, if agreeable, have Sidney C. Gorham counsel of the association. There will be no expense attached to this position, except if any work arises to be done Mr. Gorham will present a bill and same may be duly audited. I am confident that he

will not present any bill that will not meet with the universal and unanimous approval of the board.

"I shall be glad to have emphasized in the administration of the year:

"1. The question of good roads, with national, state and local aid; and with this in view have asked Mr. Gorham to prepare a uniform bill to present to the various State legislatures, the support of the Brownlow bill or a bill covering the question of national aid for presentation in Washington.

"2. The question of a uniform bill to be presented to the various State legislatures governing the use of automobiles on the highways and in the city streets. Uniform laws on this question would be very advantageous from every standpoint.

"3. The American Automobile Association should set its face like a flint against reckless and insane use of automobiles by irresponsible and careless chauffeurs and operators.

"4. A closer relation between the various automobile clubs of America and Europe.

"5. A better understanding of the rights of automobilists.

"6. Restrictions covering the question of racing, so that the matter may be hedged about with every safeguard.

"7. A uniform system of signboards throughout the country, under the sanction of the American Automobile Association."

Considerable speculation and interest is being attached to the probable appointees to the various committees. The chairmen will meet in a few days and name their helpers for the year.

The following directors were present at last Thursday's meeting: S. L. Haynes, Springfield (Mass.) Automobile Club; R. Lincoln Lippitt, Rhode Island Automobile Club; Dave Hennen Morris, Automobile Club of America; A. R. Pardington, Long Island Automobile Club; T. H. Elliott, Syracuse Automobile Club; H. S. Woodworth, Rochester Automobile Club; N. M. Pierce, Binghamton Automobile Club; A. G. Batchelder, New York Motor Club; F. R. Pratt, New Jersey Automobile and Motor Club; G. A. Post, North Jersey Automobile Club; J. H. Edwards, Hudson County Automobile Club; Windsor T. White, Cleveland Automobile Club; and N. S. Belding, Automobile Club of Maryland. Lewis R. Spearé, Bay State Automobile Association, presided in President Farson's absence.

"Per Horsepower" Tax Reaches Canada.

Canadian automobilists are beginning to have troubles of their own, particularly those in the Province of Quebec, the law-makers of which propose to levy the familiar "per horsepower" tax, that has cropped up here regularly for the past two or three seasons. This would hit Montreal hardest as fully 90 per cent. of all the cars in the province are owned there. There will be the usual delegation to protest against the passage of the measure.

Garage is not a Stable, Says Court.

A garage, when used for private purposes, is neither a stable nor a building for mechanical purposes, a fact which will cause many persons with "restrictive clause deeds" to rejoice. This ruling was given in a decision rendered by Judge Gaskill, in Superior Court, at Boston, on Thursday last, 8th inst., in dismissing a bill brought by Erastus B. Badger against Jacob Morse for an injunction to restrain the respondent from erecting a house for his automobile.

The complainant resides at 856 Beacon street, Boston, and the respondent resides in the adjoining house, No. 858. Restrictions in their deeds prevent the erection of a stable or a building for mechanical purposes among other various matters. The complainant contended that the building which the respondent is erecting in the rear of his house, in which he intends to house



JEFFERSON DE MONT THOMPSON,
New Chairman of A. A. A. Racing Board.

his automobile, is a violation of the restrictions prohibiting a stable or building for mechanical purposes.

The respondent claimed that neither restriction was broken and the counsel argued that neither contention set up by the complainant was tenable. As stated, the court gave a verdict for the respondent. Although it appears a small matter on the outside, the ruling of Judge Gaskill is an important one, as it establishes a precedence that will tend to make real estate agents be less dictatorial in the future.

Federation Formed with Two Officers.

Fine Italian hands, or rather a particularly fine Italian hand which has been working more or less unseen for the last couple of years to bring about the result, was largely responsible for the Pennsylvania Motor Federation, which was formed on March 1st, at a meeting held in the quarters of the Automobile Club of Philadelphia. Isaac Starr, president of the latter organization, was elected president of the Federation, and Paul C. Wolf, secretary of the Automobile Club of Pittsburgh, was made secretary, and, for the time being, treasurer. The remaining offices were left vacant until men can be found to fill them.

Because the Automobile Club of Philadelphia was previously allied with the American Automobile Association, efforts have been made to create something of a hubbub over its allied "secession." Members of it are quoted as saying that the association did not give them enough for their dollar, that they did not favor the Vanderbilt road races, etc., and that strong doses of good roads and legislation is what the Federation wants and proposes feedings to its members. The Federation is an offshoot of that which is termed the American Motor League, a fact which sheds a flood of light on the situation, at least to those who are in position to see behind the scenes.

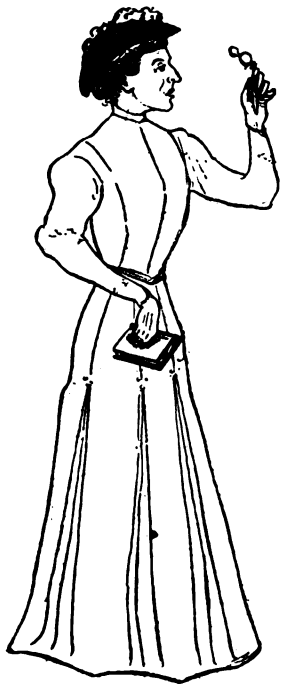
Bill to Permit Blanket Bail Bonds.

Without objection, the bill of Assemblyman Robert Lynn Cox, of Buffalo, N. Y., amending the law relating to the release of automobilists when arrested, was passed in the Assembly of the New York Legislature last Friday. The present law provides that in case of arrest for violation of the speed limit or any other provision of the automobile law, the person arrested shall be entitled to an immediate hearing and if that cannot be had shall be released upon the deposit of a sum equal to the amount of the fine imposed for his offense or upon leaving his automobile as security for his appearance. Mr. Cox's bill, which was introduced at the instance of Buffalo automobilists, adds that the prisoner shall be released on giving bond executed by a fidelity or surety company organized under the laws of this State and having a deposit of at least \$200,000 with the Superintendent of Insurance of this State, said bond or undertaking to be in an amount not exceeding the maximum fine for the offense with which the owner is charged, and to be conditioned for the owner's appearance in answer for such violation at such time and place as shall then be indicated.

Thomas to Build Three Cup Racers.

In a letter protesting against the appointment of any one either directly or indirectly connected with the trade on the racing board of the American Automobile Association, E. R. Thomas let it be known that he is having constructed at the Thomas factory at Buffalo, N. Y., three cars for the express purpose of carrying off the honors in this year's Vanderbilt race. "If I lose," says Mr. Thomas, "it will cost me \$40,000." If one of his cars wins, he adds, that "it means \$25,000 for the driver." Several other manufacturers are said to be building racing cars for this year's race, which, it is supposed, will again take place on the Long Island course, petitions having been circulated by the residents of Nassau county.

Automobile schools are coming along, but evidently the co-educational principle is not looked upon with favor as a Quaker City seat of automobile learning has established a class exclusively for women.



Boston's Fine, Large Show.

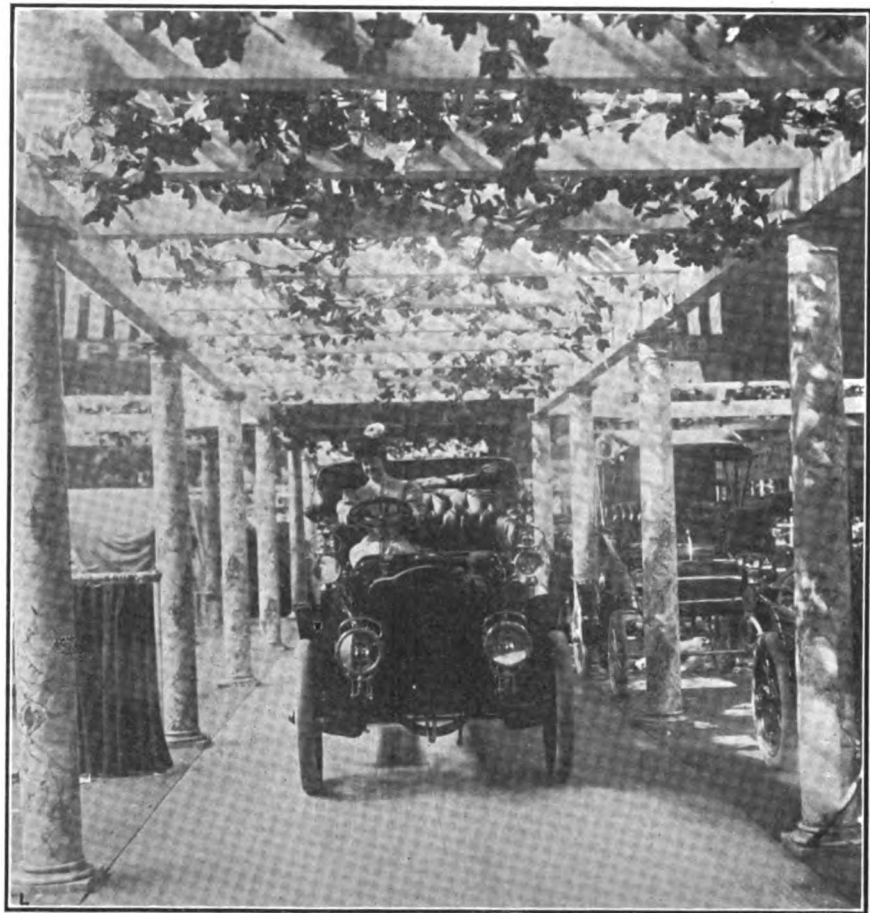
Symphony Hall not Ready on Saturday But Mechanics Building Was a Bower of Grapevined Beauty—Free Admission Attracts a Mob on Opening Night—Several New Cars in Evidence.

through which twined grape vines in all the splendor of autumnal tints, set off by innumerable vari-colored incandescent lights amid the foliage, it was well calculated to charm the eye. Red was the dominating motif of the decorations, contrasting effect-

For many reasons the decorations in the latter, which were the same throughout, were far more effective. The Italian pergola, in the shape of a huge cross, started from each side of the building, meeting at the center to form a flowery retreat that

Opening night at Boston has come to be almost as much of a feature as the show itself. It is "paper night" and Boston evidently loves paper, for the population turns out in force and practically mobs Mechanics Building. Last year the police found it necessary to close the doors by nine o'clock in order to avert what threatened to be a catastrophe if any more people were permitted to enter the building; this year on Saturday night last both entrances were thrown wide open and the incoming and outgoing streams were permitted to fight it out among themselves as to which should gain the mastery without the formality of taking up admission tickets. Hundreds of people continued to arrive every minute after seven o'clock until the crowd struggling to get inside almost assumed the proportions of that already within the building which resembled Broadway and Thirty-third street on the night of a presidential election more than anything else.

It was well worth the effort, for neither pains nor expense had been spared to create a fit setting for the car and its accessories. Unfortunately the main portion of Mechanics' Hall does not lend itself well to the decorative effects of such an exhibition, but the decorators had made the best of their opportunities. Stretching from the main entrance the entire length of the building was what appeared to be a sylvan bower that had sprung into being from the fancy of a poet, for with its onyx or marbelized columns and gilded capitals, surmounted by creamy white lattice work,



UNDER THE GRAND PERGOLA.

ively with the green floral festoons and the floor covering and set off by ivory white railings adorned with brass balls. The signs were of the same shade of red as the decorations, relieved with gilt lettering. Owing to the tringular form of the building, two main aisles radiated from the entrance and were joined by a cross aisle at their end, the former continuing to the entrances to Grand Hall.

served to house the orchestra. And from the balconies it was possible to look down upon the scene from all points of view, from which an excellent idea of the effectiveness of the whole could be gained. The red and green of the floor and signs blended harmoniously with the white and gilt of the railings and lattice work, to form a picture pleasing in the extreme. Unfortunately the thumbing of thousands of hands soon

marred the purity of the railings, leaving them more of a chocolate shade, but it was a defect easily remedied with soap and water. A fact that added in no small measure to the effectiveness of the show as a whole, was to be found in the liberal allotments of space and the further circumstance that with few exceptions no attempts had been made to crowd an unnecessarily large number of cars on the stands. This provided sufficient leeway to relieve the congestion of the aisles to some extent.

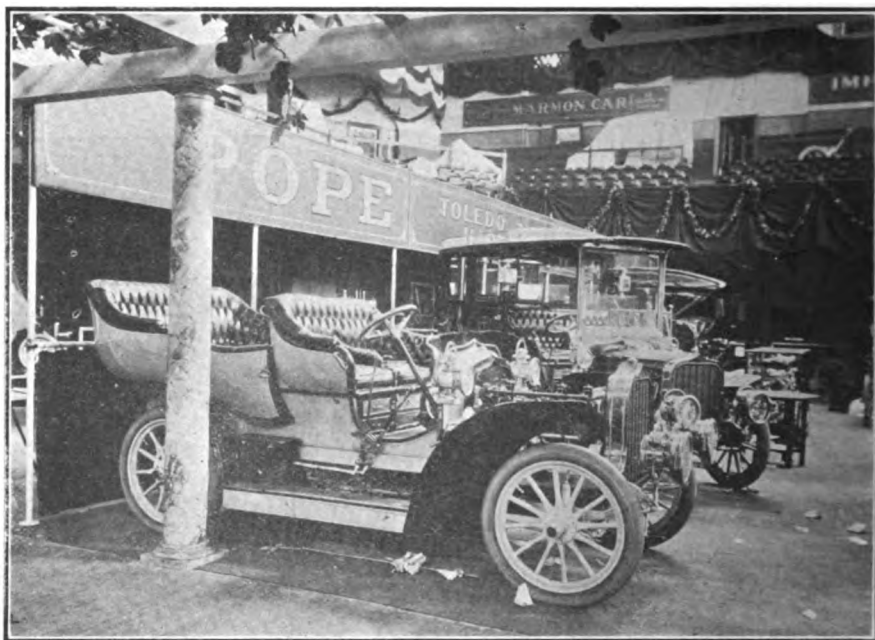
Familiar names and cars greeted the eye on every side, for of the total of 305 exhibitors, but a comparatively small proportion were purely local or identified with interests that have not been represented at former gatherings. The entire left hand side of the main aisle leading from the entrance to Mechanics' Hall was flanked by the Columbia gasoline and electric vehicles, the Locomobile, with Dr. H. E. Thomas's Vanderbilt cup racer, the Fiat, Studebaker and Ramblers in the order named, the Columbias and Ramblers each having an end alcove of generous dimensions and well lighted, in which the cars were displayed to the best advantage. On the right, facing this line, were the Reo, National, Marion and Ranier, all shown under the same auspices and occupying a large triangle by themselves. Next to them was to have been installed a newcomer, the Essex steamer, but the space was abandoned and given over to a display of the Lambert friction drive cars. Following this was a large space devoted to the various types of Wayne cars. The Thomas, Berkshire, Frayer-Miller and Premier faced on the second diverging aisle and were followed by the Matheson, Olds and Buick. At intervals along the space flanking the wall of the building which was largely given over to accessories were to be found the empty space awaiting the Page runabout, a new comer, which had failed to arrive up to Tuesday night, an Olds truck and an Olds 'bus, as well as a heavy Knox stake truck built for the use of a Boston firm.

Among the principal occupants of the main floor of the Grand Hall were the White steamers, the various makes of Pope vehicles, the Packard and Cadillac, Pierce Great Arrow, Royal Tourist, Winton, Autocar, Crawford and American Mercedes, which accounted for practically the entire center of the floor. The White steam showing was of the same liberal number of types, ranging from the runabout that is white in color as well as name, up to a luxurious limousine, that has characterized the exhibit of the makers at every show. This applies with equal force to the many varying types of vehicles staged under the Pope aegis, which likewise ranged upward from the Pope-Tribune runabout and its heavier contemporary, a Pope-Toledo, in bright carmine with black striping that was a center of attraction, to the heaviest cars of both open and closed types turned out under this name, not omitting the Pope-Waverly electrics. The stage held the

Peerless, Franklin and Darracq, while the 50 horsepower Apperson and the new models of the Hotchkiss and Welch were in evidence on the floor. Ranged in the wall booths, were the Ford, which disappointed the first nighters by not having its exhibit complete, or complete enough to include the new Ford runabout, the arrival of which was looked forward to by many, the Mitchell runabout and touring models, the Corbin, which staged the same exhibit as was shown at New York, the Elmore and Haynes. The Stoddard-Dayton space was in the centre of the floor, but, like the Ford, its exhibit had been delayed in transit and was not in place in time for the opening night. Across the aisle from the

has a standard tread on an 86-inch wheel-base and is fitted with 32x3-inch detachable Dunlops. All on the weight is 1,450 pounds, and the selling price is \$1,500.

The Pierce Arrow display is very complete, including an exhibition chassis, a limousine, a victoria and a touring car. Together with these were some representatives of the Baker electric family, chief among which was a physician's runabout. The new waterless Knox four-cylinder and the Stearns were prominent, while probably for the first time, a complete showing of the American and English representatives of the Napier mark were on view. The Pierce-Racine and Cleveland were shown together.



Ford was the Jackson exhibit, in worse plight, as all its cars were delayed. A feature of interest that was studied by many at the Elmore booth was a sectional single cylinder engine, plainly showing the workings of the three port, two-cycle motor.

Staged in connection with the Acme touring cars was the new Merkel four-cylinder runabout, which in spite of the fact that it hails from Milwaukee, was shown for the first time at Boston. Its 16 horsepower motor, has dome-shaped independently cast cylinders, the spark-plugs being set at a 45 degree angle. Its most distinguishing feature is to be found in the use of eccentrics instead of cams to actuate the valves. This has long been a characteristic of the Cadillac single cylinder motor that has been shared by no other hitherto, but so far as known the principle has never been applied to the four-cylinder motor before. The motor is of the four-cycle type, the dimensions being 3½x3½ inches. A three-speed sliding gear change speed box is fitted, the final drive being by shaft and bevel gear. Lubrication is well provided for by a Hill precision oiler. The car is intended solely for use as a runabout. It

The leverless Gasaulec, the sensation of the 1905 show, was among the missing; its space was empty up to Tuesday night. The overflow exhibit which was housed in Symphony Hall, a block or so distant, was not ready for the opening night. It was devoted principally to the showing of foreign cars, though several American makers found it impossible to procure space in the main building. Among these were the brand new Shawmut, the Queen line, the new Northern air-controlled car, and the Northern two-cylinder line, the Iroquois cars, which hail from Seneca Falls, N. Y., the Harrison touring cars, the Crown runabout and the Stanley steamers. Owing to their great weight the ponderous electric trucks of the Vehicle Equipment Co., as well as the heaviest of the Knox "waterless" trucks were among the boats in the basement, as the floor of the latter was on the ground level at the rear of the building.

Boston has the reputation of bringing forth at least one or two new cars of New England origin at the annual show, and in the present instance these were the Shawmut, staged in Symphony Hall, and the new Ross steam car, the latter of

a description of which follows. It was confidently expected that the Shawmut car would be productive of a number of novel features, and so far as the up-to-date standard car can embody out of the ordinary features the searcher for detail was not disappointed. The use of separate heads marks a departure in the cylinders which measure $4\frac{3}{4} \times 5\frac{1}{2}$ inches and are rated to develop 40 horsepower at 1,000 r. p. m. The cylinders themselves are also independent, with oppositely disposed valves, the chambers of which are entirely surrounded by the water jackets. It was further marked by the use of ball bearings not alone on the crank-shaft, which is supported on five bearings of this type, but also on the cam shaft.

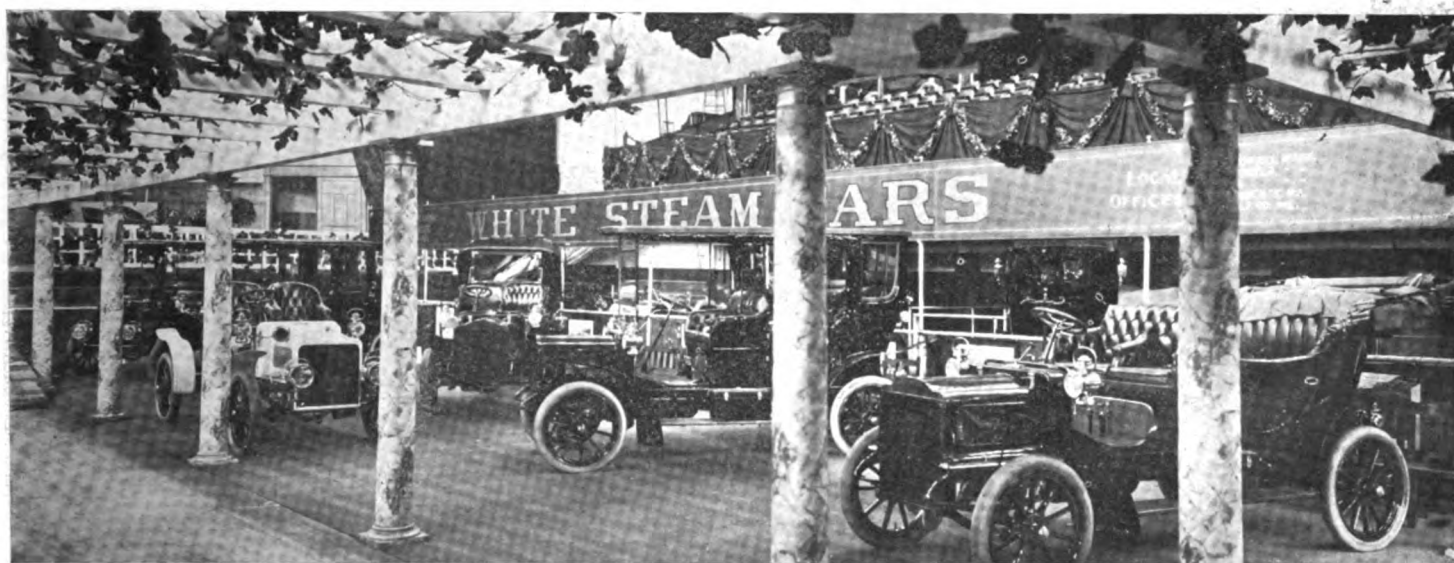
Lubrication is of the splash type, each crank compartment being fed separately

on the countershaft differential, while with the shaft drive both are on the rear hubs—one internal expanding and one external. The body is of aluminum and wood from designs by a Boston house. One of the features of the car in this connection is the employment of non-corrosive steel for trimmings—a material that is said to be much easier to polish than brass.

For the first time in the history of the industry have cars encroached upon the space that for obvious reasons has always been considered as the legitimate stamping ground of the accessory makers—the balconies. But here almost 30 feet above the floor of Grand Hall were heavy cars, and owing to the fact that they had to be hoisted into place by means of an improvised derrick, the opening night did not see as many of them in place as was the

shaft to a live axle. The high tension ignition is taken care of by a multiple unit coil and accumulators. Tread is standard and the wheel base measures 111 inches. Fitted with 34x4-inch tires, a Prest-o-lite tank and all on, the weight is 2,400 pounds, and the touring model lists at \$3,000.

Another new entrant in the field is to be found in the balcony in the shape of the Ross steamer, which has been evolved by Lewis S. Ross, since parting connection with the Stanley interests. It was not the beetle-shaped racer in which the maker earned his fame, but a touring car of the generally accepted design. The entire power plant is concentrated under the hood and comprises a fire tube boiler 24 inches in diameter, and a two-cylinder, 25 horsepower double-acting, non-condensing engine of the simple type. A clutch is pro-



vided for running the engine with the car stopped, but otherwise the drive is direct to the rear axle by means of a propeller shaft. The wheel base is 108 inches and, with Goodrich 34x4-inch detachable tires, the weight is 3,200 pounds. Next to this was the display of the Duryea Power Co., with the famous Duryea three-cylinder engine that has endured all changes in automobile engineering practice.

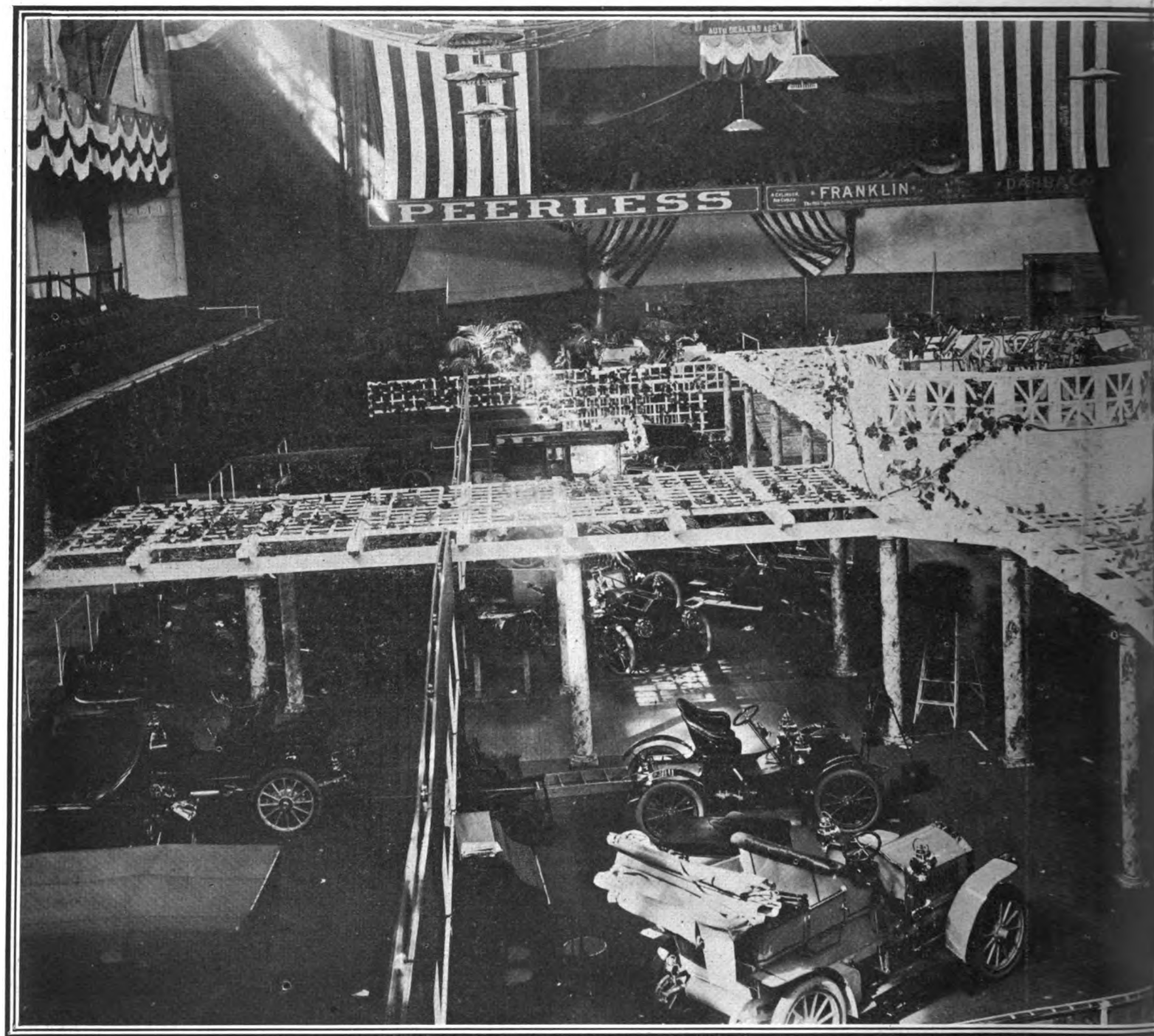
Accessories.

Scattered here and there among the exhibitors of cars on the main floor of Mechanics' Hall were a number of accessory makers and dealers, and the first to strike the eye in passing down the right hand aisle was the stand of the ubiquitous Miller—Charles E.—whose branches are extending wherever automobiling is indulged in. It was comfortably ensconced in an alcove and contained the usual assortment of everything pertaining to the wants of the car or the needs of the motorist himself. Flanking Miller's exhibit on the right was the instructive display of Harris oils, showing their composition, and on the left, the display of the Boston Cycle & Sundry Co.,

from a positive plunger pump, which forces the oil through a sight feed on the dash and through a rotating valve. While the standard form of ignition to be supplied will be low tension make and break with the Simms-Bosch magneto, an option will be given in the shape of the Eisemann high tension system in connection with which a Lacoste single vibrator coil and set of accumulators may be installed as a reserve. The throttle is controlled by the usual lever on a stationary sector, but an accelerator pedal at the base of the steering post is also provided for this purpose. A feature of the cooling system is the use of removable tubes in the honeycomb radiator. It is composed of three, any one of which may be taken out separately for cleaning. As in the case of the ignition, the customer is also given an option on the type of transmission. Either shaft or chain drive will be fitted. In either case a four-speed sliding pinion change speed gear is fitted, the sliding set being mounted on a fluted shaft instead of the ordinary square section. The only difference in the two types of drive lies in the placing of the brakes, one of which in the chain type, is

case on Monday. Ranged around the spacious balcony were the St. Louis, which was represented by an exhibition chassis and a Victoria type runabout, the Aerocar, also with an exhibition chassis and a touring car, the Dolson, the new Grout, which is a much larger and powerful car than the first gasoline model turned out under this title, the Marmon, the Windsor gearless car which employs a friction drive, and the American, a new-comer, claiming Indianapolis as its birthplace, but shown here for the first time.

The American is aptly named, for it embodies throughout, features that have come to be distinctive of automobile engineering practice in this country. The model shown was a 40 horsepower touring type, motored with the standard, four-cylinder vertical engine under the bonnet forward. The cylinders are cast in pairs and measure $4\frac{3}{8}$ -inch bore by 5-inch stroke, and are so free from accessories on the off side as to resemble a two-cycle motor at first sight. All valves are mechanically operated from the same cam shaft. Sliding change speed gear giving three forward speeds is employed, the final drive being by means of



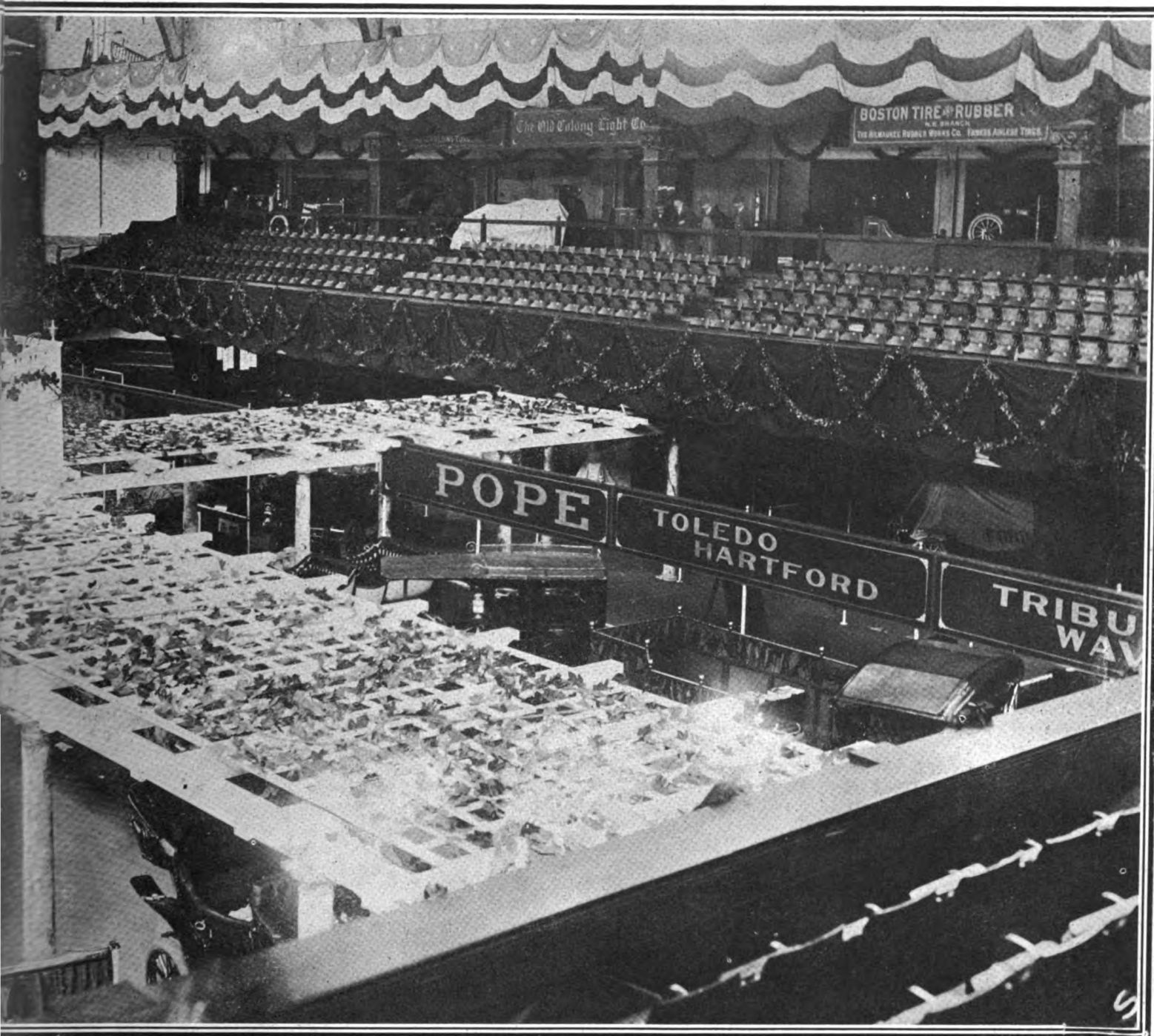
GENERAL VIEW OF ONE SECTION OF THE BOSTON SHOW

representing about the largest exhibit of its kind at the show, and containing everything imaginable in the way of accessories. Post & Lester, of Hartford, were also well represented by a goodly showing of the various specialties handled by that firm, which, of course, included De Luxe lamps, and who also had an alcove to themselves. Along the same line were to be found the exhibits of the Veeder Mfg. Co., showing its various forms of speed recording devices in operation; the Uncas Specialty Co., makers of ignition apparatus, which was also shown in operation; The "Powerful" searchlight, made by Peter Gray & Sons, Speare's

lubricating oil, and last, but far from least, for it was not possible at first sight to determine whether the exhibit was that of a car or an accessory, was the showing of the "Auto bed," upon which a touring car was mounted and rolled about in the more or less limited space for the edification of the visitor.

Without doubt the most striking accessory exhibit and in addition, the largest of its kind, was that of Gray & Davis. The space occupied by this exhibit stretched clear across the base of the large triangle made by the two lines of cars, and the many types of highly polished brass lamps com-

prising it were housed in artistic colonial glass cases in pure white which harmonized effectively with the decorative scheme and were further set off by their gleaming contents. For the first time, the entire balcony of the main building was given over to accessory exhibits, among which were to be found many of the familiar stand-byes that have grown and developed with the expansion of the industry generally. Among these were the Firestone and Swinehart tires, the former showing the new Firestone pneumatic, the Truffault-Hartford shock absorbers, Whitney chains, Exide and National batteries and a number of others.



MECHANICS' BUILDING, SHOWING THE GRAND PERGOLA.

In the field of ignition apparatus, Connecticut spark coils and Apple complete outfits were prominent, as were also the stands of Leon Rubay, showing various types of high and low tension magnetos, and the Lacoste specialties. The Albert Champion Co. displayed Nieuport low tension and the Gianoli high tension magneto, which is a newcomer on this side of the water and practically the first accessory of Italian invention to be offered in this market. These four exhibitors had the balcony to themselves so far as ignition apparatus went.

Bowser safety gasoline tanks and garage outfits occupied a prominent location diag-

onally opposite the Gray & Davis exhibit, while in the other direction was the booth of the American Electric Novelty Co., displaying the various specialties made by that firm and including the new Ever Ready self-starter. Diamond chains, Witherbee storage batteries and lamps were shown by the Angier Co., and flanking them was the novel exhibit of the Kilgore air cushion shock absorber, which could not be passed by unobserved, as it contained a number of the devices placed high on the wall. It was shown together with the Warner Automobile, which was displayed running.

But there was absolutely no end to the

variety to be found in the shape of accessories and in this the Boston show can claim to be second to none, though the fact of their being scattered considerably detracted somewhat from the impressiveness of the size of the accessory display. In the balcony alone they ranged in diversity from the exhibit of a dealer in photo supplies to a typewriter display, though just what bearing the latter had on the car was not apparent as its use for correspondence in the tonneau was not suggested. While there was no lack of variety there was not much duplication, the Jones speedometers being largely in evidence in their chosen

field, although the instruments of the Hicks Speed Indicator Co. and the Heffecker speed and mile indicators were on view, some of both of them being shown in operation.

A brand new entrant in the field of shock-absorbing devices is the product of a down east concern, the Hill Motor Car Co. It has been given the apt title of "Victory" and is designed upon familiar lines. It consists of a friction disk attached to the frame and connected to the axle at the center of the spring through the medium of a rod and lever, developing about four times as much resistance on the recoil of the spring as it does on the compression. For a similar purpose were the Sager "equalizing" springs shown by the J. H. Sager Co. In connection with the Hill exhibit there were also staged the Lea tire pumps and the Lea Speedistimeter, while another combined exhibit was that of the Whitney chains and the Loring speed gauge. Samson leather tires occupied a prominent position and were shown in such profusion that it was impossible to overlook them. The Healey leather tire was also in evidence as was the "Iron Tire" pneumatic wheel which is being aggressively exploited. Hoods, fenders and tanks shown by E. B. Badger & Sons, fuel tanks, made by the Gilbert & Barker Co., Banner oils and greases, the Dodge oilers, Keystone lubricants, Murray tops, Bay State wrenches and tools, Eco acetylene generators, Triumph tanks and dash gauges, Iron Clad specialties, Gilbert tire cases, Dover drip pans, Vacuum Mobiloils, Sprague tops and a host of others contributed to make the list of accessories as complete as the most interested visitor could wish for.

A few scattering accessory exhibits were sandwiched in between the cars about the balcony of Grand Hall, and the same was true of Symphony Hall, but with these inconspicuous exceptions, the former building presented the unique aspect of being given over—main floor and balcony—to the staging of cars, of which many of the heaviest were on the upper floor. In connection with the exhibit of Duryea cars, the Artz folding tonneau was shown, while across the aisle from the latter were the Dietz lamps and Jacobs improved drill chucks. The most prominent accessory exhibit in this part of the building was that of the Gabriel horns and Foster shock brakes, which unfortunately were not installed in time for the opening night. Directly opposite them on the other side of the balcony was the showing of Fawkes "airless" tires.

The exhibits are as follows:

Butler Motor Car Co., Boston, Rapid commercial vehicles.
Saunders, C. H., Melrose, Mass., Moline cars.
Hub Automobile Exchange, Dorchester, Mass.
Ross, Louis S., Newtonville, Mass., Ross steam cars.
Coleman, H. P., Boston, Duryea cars.
Corwin Manufacturing Co., Peabody, Mass., Gasaulec cars.

Wing & Co., F. E., Boston, Marmon cars.
Imperial Auto Co., Boston, Aerocar, Dolson, Argus, St. Louis and Martini cars.
Grout Brothers' Automobile Co., Orange, Mass., Grout gasoline cars.
American Motor Car Co., Boston, American cars.
Stanley Motor Car Co., Newton, Mass., Stanley steam cars.
Babcock Electric Carriage Co., Buffalo, N. Y., Babcock electric cars.
Blomstrom Motor Co., C. H., Detroit, Mich., Queen cars.
Shawmut Motor Co., Boston, Shawmut cars.
Stratton Motor Co., Boston, American Mercedes cars.
Josnson Service Co., Milwaukee, Wis., Johnson steam cars.
Mors Automobile Co., Boston, Mors cars.
Mercedes Import Co., New York City, Mercedes cars.
English Daimler Co., New York City, English Daimler, C. G. V., and Decauville cars.
Northern Automobile Agency, Boston, Northern cars.
Crown Motor Co., Boston, Glide cars.
Eisenhuth Horseless Vehicle Co., Middletown, Conn., Compound cars.
Iroquois Motor Car Co., Seneca Falls, N. Y., Iroquois cars.
Nichols & Co., H. P., Boston, Frayer-Miller and the Clark steam cars.
Detroit Auto Vehicle Co., Detroit, Mich., Crown delivery wagons.
Harrison Wagon Co., Grand Rapids, Mich., Harrison cars.
Duquesne Co., The, New York, Duquesne cars.
Clark, Edward S., Boston, Clark steam cars.
Peerless Motor Car Co., Boston, Peerless cars.
Bangs, A. R., Boston, Franklin and Darracq cars.
Dunham, George J., Boston, Royal Tourist cars.
Winton Motor Carriage Co., Boston, Winton cars.
White Sewing Machine Co., Boston, White cars.
Reed-Underhill Co., Boston, Knox and Stearns touring cars and Knox trucks.
Moore & Smith, Boston, Autocars.
Napier Co., of America, Boston, Napier cars.
Fuller, A. T., Boston, Packard and Cadillac cars.
Boston Automobile Exchange, Boston, Crawford gasoline cars and Columbus electrics.
Pope Manufacturing Co., Boston, Pope-Toledo, Pope-Hartford, Pope-Tribune and Pope-Waverly cars and commercial vehicles.
Randliff Motor Car Co., Boston, Panhard, Stoddard-Dayton, Frayer-Miller and Ardley cars.
Skinner, K. A., Boston, DeDion Bouton cars.
Maguire, J. W. Co., Boston, Pierce Arrow cars and Baker electrics.

Brown, George M., Boston, Apperson and Hotchkiss cars.
Mills Kennedy Co., Boston, Weich cars.
Boston Motor Co., Boston, Acme and Merkel cars.
Jenkins & Sheldon, Boston, Mitchell cars.
Kimball Co., E. T., Boston, Corbin cars.
Blake & Co., E. P., Boston, Jackson cars.
Ford Motor Car Co., Boston, Ford cars.
Breed, E. S., Boston, Haynes and Elmore cars.
Butler Motor Car Co., Boston, Cleveland, Pierce-Racine and Richard Braiser cars.
Sturtevant Mill Co., Boston, Sturtevant cars.
Jeffery & Co., T. B., Boston, Rambler cars.
Fosdick Co., Harry, Boston, F. I. A. T. and Studebaker cars.
Locomobile Co., of America, Boston, Locomobile cars.
Columbia Motor Vehicle Co., Boston, Columbia gasoline and electric cars.
Linscott Motor Co., Boston, National and Reo cars.
Morrison-Tyler Motor Car Co., Boston, Maxwell, Ranier and Marion cars.
The Buckeye Mfg. Co., Anderson, Ind., Lambert friction drive touring cars.
Wayne Automobile Co., Boston, Wayne cars.
Baker-Comerai Motor Car Co., Boston, Premier cars.
Berkshire Automobile Co., Berkshire Mass., Berkshire cars.
Henshaw, C. S., Boston, Thomas cars.
Matheson Motor Car Co., Wilkes-Barre, Pa., Matheson cars.
Adams-Sutton Motor Co., Boston, Oldsmobile cars and commercial vehicles.
Buick Auto Agency, Boston, Buick cars.
Waltham Manufacturing Co., Waltham, Mass., Waltham-Orient cars.
Page Motor Vehicle Co., Providence, R. I., Page air-cooled runabout.
Leach, J. N., Boston, Melrose cars.
Knox Motor Truck Co., Springfield, Mass., Atlas trucks.
Vehicle Equipment Co., Long Island City, N. Y., commercial electric vehicles.

Accessories.

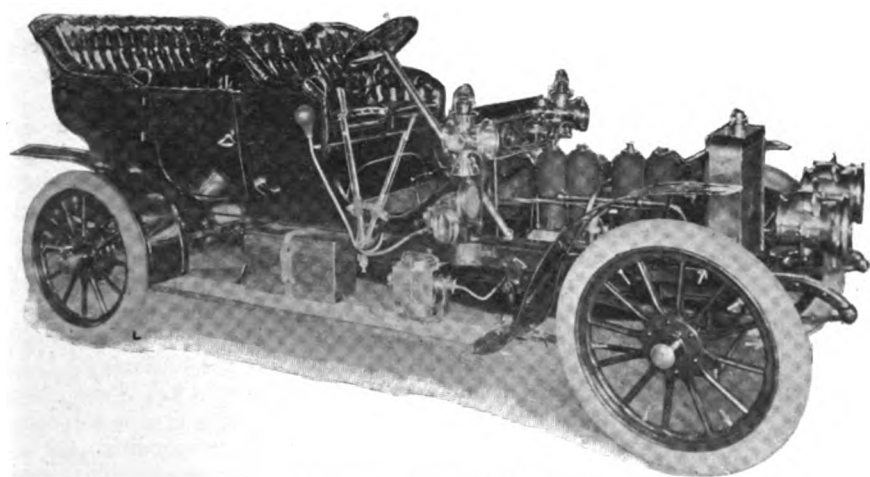
Miller, Charles E., Boston, supplies and sundries.
Boston Cycle & Sundry Co., Boston, supplies and sundries.
Bowser, S. F. & Co., Boston, safety gasoline storage tanks and outfits.
American Electric Novelty Mfg. Co., New York, Ever Ready dry batteries and specialties, Ever Ready self-starters.
Angier Co., The, Boston, Diamond chains, Witherbee storage batteries, lamps.
Gray & Davis, Amesbury, Mass., lamps.
Autobed Co., The, Boston, Autobed turntable and car shifter.
American Agency Michelin Tires, New York, Michelin tires.
National Carbon Co., Cleveland, Ohio, Columbia dry batteries.
Veeder Mfg. Co., Hartford, Conn., Veeder odometers and tachometers.
Uncas Mfg. Co., Norwich, Conn., ignition specialties.

Post & Lester Co., The, Hartford, Conn., general supplies and sundries.
 Alden Spear's Son Co., The, Boston, lubricating oils.
 Gray & Sons, Peter, Boston, The Powerful seachlight.
 Harris Oil Co., Providence, R. I., Harris lubricating oils.
 Champion Co., Albert, Boston, Newport and Gianoli magnetos, imported ignition specialties.
 Atwood Mfg. Co., Amesbury, Mass., Atwood lamps.
 Gilbert Mfg. Co., New Haven, Conn., Gilbert tire cases.
 Jones Speedometer Co., New York, Jones Speedometers.
 Whitney Mfg. Co., Hartford, Conn., Whitney chains.

Anderson Spark Plug Co., Boston, spark plugs.
 Iron Clad Mfg. Co., Brooklyn N. Y., tanks, galvanized iron specialties.
 Tokheim Mfg. Co., Brooklyn, N. Y., gasoline storage outfits.
 Rands Mfg. Co., Detroit, Mich., Rands tops.
 Vacuum Oil Co., Boston, Vacuum "Mobil-oils."
 Dover Stamping Co., Cambridge, Mass., drip pans and cans.
 Boston Auto Gauge Co., Boston, "Triumph" gasoline gauges.
 Eagle Oil & Supply Co., Boston, lubricating oils.
 Leon Rubay, New York, Lacoste ignition specialties, imported high and low tension magnetos.
 Hartford Suspension Co., New York, Tru-fault-Hartford shock absorbers.

Richardson Engineering Co., Hartford, Conn., spark plugs, electric lighting plants.
 Olds Gasolene Engine Works, Lansing, Mich., Olds stationary pumping engines.
 Fairbanks Co., The, Chicago, Ill., motors.
 Mitchell Punctureless Pneumatic Tire Co., Swampscott, Mass., puncture-proof tires.
 Sage Trunk Depot, Boston, Sage automobile trunks.
 Dietz, R. E. & Co., New York, Dietz lamps.
 Boston Tire & Rubber Co., Boston, Fawkes tires.
 Gabriel Horn Mfg. Co., Cleveland, Ohio, Gabriel horns, Foster shock brakes.
 Way Muffler Co., Philadelphia, Pa., Way mufflers.
 Jacobs Mfg. Co., Hartford, Conn., Jacobs' improved drill chucks.
 Pennsylvania Rubber Co., Boston, Pennsylvania tires.
 Salisbury Tire Co., Owosso, Mich., tires.
 Voorhees Rubber Mfg. Co., Jersey City, N. J., cushion tires, tire repairs.
 Iver Johnson Sporting Goods Co., Boston, accessories.
 Electric Rubber Mfg. Co., Rutherford, N. J., Panther tires.
 Wells Light Mfg. Co., New York, non-skid bands and retreading covers.
 Bullard, J. H., Springfield, Mass., Bullard speed recorder.
 American Metal Polish Co., Somerville, Mass., metal polishes.
 Kilgore Auto Air Cushion Co., Boston, Kilgore air cushion shock absorbers.
 Dodge Lubricator Co., Boston, Dodge lubricators.
 Equitable Distributing Co., Boston, supplies and sundries.
 Dow Portable Electric Co., Braintree, Mass., Dow ignition specialties.
 Heinze Electric Co., Lowell, Mass., Heinze coils.
 Oil Tempering Spring Co., Chicopee Falls, Mass., springs.
 Auto Goods Co., Providence, R. I., supplies.
 Tudor Mfg Co., Boston, Bay State wrenches and tools.
 Motor Car Specialty Co., Trenton, N. J., Lea tire pumps and Lea Speedistimeter.
 Jordan, Marsh & Co., Boston, clothing and sundries.
 Hill Motor Car Co., "Victory" shock eliminators.
 Dayton Electrical Mfg. Co., Dayton, Ohio, Apple generators and ignition systems.
 Swinehart Clincher Tire & Rubber Co., Akron, Ohio, Swinehart solid clincher.
 National Battery Co., Buffalo, N. Y., National storage batteries.
 Sager Co., J. H., Rochester, N. Y., Sager equalizing springs.

Motor boats formed no small part of the show; they, however, were relegated to the basement. "Newspaper row" was also a feature. All of the automobile publications and Boston dailies were there, likewise several prints whose connection with motoring is vague and remote.



THE NEW "AMERICAN" CAR.

Eco. Mfg. Co., Boston, Eco acetylene generators.
 Badger & Sons Co., E. B., Boston, hoods, fendlers, tanks.
 Firestone Tire & Rubber Co., Akron, Ohio, Firestone solid and detachable pneumatic tires.
 Iron Tire Pneumatic Wheel Co., New York, Iron tire pneumatic wheels.
 Hicks Speed Indicator Co., Brooklyn, N. Y., Hicks' speed indicators.
 Healey Leather Tire Co., New York, Healey leather pneumatic tires.
 Hutchison Electric Horn Co., New York, Hutchison electric horns.
 Electric Storage Battery Co., Boston, Exide accumulators.
 Samson Leather Tire Co., New York, armored leather tires.
 Eastern Carbon Works, Jersey City, N. J., dry batteries.
 Conn. Telephone & Elec. Co., Meriden, Conn., Connecticut coils and electric specialties.
 Columbia Vehicle Tire Co., Boston, tires.
 Baum's Castorine Co., Boston, lubricants.
 A. N. Greenwood Oil Co., Boston, lubricants.
 Loring, E. J., Somerville, Mass., Loring speed indicators.
 Hillman Plating Co., Boston, repairs.

Rose Mfg. Co., Philadelphia, Neverout lamps.
 Rollins Mfg. Co., "Hoffecker" speed and mile register.
 Globe Optical Co., Boston, goggles.
 Murray, P. A., Newton, Mass., Murray tops.
 Coops, Charles W., Boston, supplies and sundries.
 Pantasote Leather Co., New York, upholsters' leathers.
 Prosser & Son., Thomas, New York, Krupp steels.
 McClellan, Charles P., Fall River, Mass., tops.
 Sprague Umbrella Co., Norwalk, Ohio, Sprague tops.
 Teel & Co., E., Medford, Mass., Teel tire cases.
 Cramp & Son Ship & Engine Building Co., William, Philadelphia, bronze castings and bearing metal.
 Buffalo Gasolene Motor Co., Buffalo, N. Y., Buffalo motors.
 Gearless Transmission Co., Glens Falls, N. Y., friction drive.
 Norton Emery Wheel Co., Worcester, Mass., emery wheels and grinders.
 Coates Clipper Co., Worcester, Mass., flexible shafting.
 Monitor Electric Speed Recorder Co., Cambridge, Mass., Monitor speed recorders.

THE CHOOSING OF A CAR

How the Prespective Purchaser Goes About it, his Befuddlement and the Way Out.

Volumes have been written on the subject of "How to buy a car," while it would require all the available phonograph records that could be produced by that industry for some time to come, to record all that is said on the subject during the course of a single show. And all this without, in many instances, bringing the would-be-buyer any closer to the attainment of the education attempted to be forced upon him by endless willing spellbinders. To the man whose knowledge of the automobile is restricted to the single fact that he is desirous of possessing one, it must be conceded that the task of selecting a car is not an easy one by any means.

In the first place, he does not know what he wants. Coming upon the scene utterly unversed in the mechanical lore which it takes the average new owner of a car at least one season to acquire, all automobiles look alike to him, and if his choice is unrestricted by financial or other considerations, he will find that every car is the best, always has been the best and always will occupy that proud distinction. But this is the least of the things that the salesman can tell him, and by the time he has listened to an extempore lecture of half an hour longer, every statement of which is made with that assurance that totally ignores the existence of competition, he will be quite convinced that he has seen the only real car in the show. He would not have recognized it if he were to pass by casually—it does not bear any ear marks of special distinction, but it must be the real thing, because it is a limousine and has a four-cylinder carburetter, direct drive on the top notch clutch, the latest style of bonnet and is guaranteed to be kind and sound, city broke and will stand without hitching.

If the investigator were to call a halt right here and duly reward the painstaking young man who has gone to so much trouble to explain all those things and make them perfectly clear, by giving him the order and clinching it with a check for the deposit, all would be well and there is every probability that the buyer would be as content in the end with his purchase as he is with the car that he decides to invest in only after an exhaustive study of everything the market affords. But unfortunately, he does not take this wise step. Instead he allows himself to be burdened with a catalogue, a pamphlet of testimonials, a few special write-ups of the car and its performances besides sundry other literature, and thus equipped, strolls on to the

next stand. His initial sense of helplessness has vanished to a great degree since he imbibed the flow of information that he has not yet had time to digest; with it his appealing look has faded somewhat, also. But the latter returns the moment he tries to apply his newly gained knowledge to the concrete at the next booth, and even if he were minus this badge of his novitiate, the salesman would recognize him through that intuitive faculty that enables him to spot the anxious ones at a glance.

After an equally lengthy session, the man who would buy a car departs with much of his previously acquired knowledge annulled by what has come after it. Like the new judge, he would have been perfectly content to decide the case in favor of the first litigant without hearing the defense, but the arguments of the second exhorter having swept the slate clean; he is now just as ready to decide in the latter's favor as he was previously to award the palm to the first comer. Instead of being burdened with knowledge, he is possessed of two forces battling one against the other and makes a vain attempt to reconcile them—to bring the statement of his first expounder into line with those of the second, but all to no purpose. In the process, his armful of literature has expanded. Thus equipped he falls a prey to the third, who proceeds to take him under his protecting wing and show him the utter uselessness of all the alleged information regarding what an automobile should be that he had been busy in absorbing for the last hour or more.

With this third visit it may in all probability be his misfortune to fall into the hands of the expounder who has a special system with features all of its own—it looks the same from the outside, but it just bristles with exclusiveness according to the salesman. Lift the bonnet and you uncover something totally different—something vastly superior in every way to any other car on the floor. "Oh yes, it looks the same. That is, the other cars look like it," is the way the salesman puts it, "but make no mistake, this—this here, is the real car." The would-be buyer is charmed; he is delighted. He sheds his burden of catalogues on a convenient spot in the booth as if he felt that he would have no further need for them, and he will not have if the salesman can help it. He listens to all kinds of speeds, selective shifts with direct drives on the radiator—impossible to strip any gears, puncture tires or hurt the bonnet. You push the button and the car does the rest, and no matter how little you happen to know about the rest, the car will take care of itself under all circumstances and in all kinds of weather, for it has a limousine body. "No, he is not ready to place his order just at that moment," so he acquires further additions to his armful of catalogues which the salesman reluctantly resurrects from the waste basket upon request, and he goes forth feeling relieved.

That must be the real car, but he will take a look around the show generally before making a final choice. He looks at his watch. Two and a half hours since he came in and his order has not been placed yet—he thought it would only be a matter of an hour or so before he could finish the whole thing, but come to think of it he finds that he has only seen three cars altogether, and there are lines and lines of them stretching off in every direction; cars everywhere he looks, good looking cars, too. He must see them before he leaves or it will be necessary to make another visit, so he bravely heads for the first one that attracts him—but why prolong the agony?

The end of the show finds him with circulars, catalogues, posters and calendars without limit; with an assorted fund of knowledge that has no particular bearing on any one car, for what he has remembered of it is purely abstract and he cannot recall just which maker's "hired man" was responsible for giving it to him. He has ridden in a dozen or more different cars; here again if he had placed his order early in his experience, he might have been just as well pleased, but all the cars seemed to ride just as swiftly and smoothly as the others; they were all possessed of the same luxurious finish and upholstery, and they all looked pretty much the same, so that at the end of the week he was no nearer a choice than at the beginning. Doubtless many a motorist who has since become experienced, will recognize in this picture a reflection of his own condition upon entering the ranks and can sympathize with him.

All this does not explain how to buy a car, it may be remarked, but such was not its intention. Probably how not to buy a car would fit it better. As already mentioned, there have been many and voluminous articles dealing with the subtle knowledge required to tell the good car from the poor at first glance—of the "speak a foreign language perfectly in five lessons by correspondence" type. Its axles should be at least so thick, its frame so heavy and no heavier, it should have a flywheel and a bonnet and a wheel-base together with a few other essentials which the wise ones discourse on to the extent of several columns, and after reading one of these perorations, the beginner thinks he knows just what he ought to have and just what he ought not to permit himself to be inveigled into parting with his money for—all this in the abstract, of course. After having done the shows until he is footsore and altogether weary, he finds that there is no one car to which it all applies. To sum up, knowledge will prove of great assistance in the selection of a car, but without it, the new aspirant for honors behind the wheel may rest assured that whatever he wishes to spend will be well invested, if devoted to the purchase of a vehicle which has behind it the name of a recognized maker of standing.

BOYCOTTED AND RAINED ON

Los Angeles Racemeet run Under Adverse Conditions—"Whistling Billy" There.

In the East the great bugaboo of track racing has been the vagaries of the weather and it seems that the same hoodoo, if such it can be called, is destined to harass promoters in the West. The automobile race meet at Los Angeles, originally scheduled for February 16, 17 and 18, had to be postponed until March 2, 3 and 4, on account of the rain and finally the last day's events had to be called off altogether for the same reason. The meet was held under difficulties anyway. The Southern California Automobile Dealers' Association had boycotted the affair, because the promoter—H. D. Ryus, agent for the White cars—was not a member of the association.

The races were run on the Agricultural Park track, where Barney Oldfield made the record mile in 53 seconds, and had it not been for the slippery surface this time would undoubtedly have been eclipsed. The feature on Friday, the 2nd inst., was the five-mile free-for-all, with the famous old "Whistling Billy" White, Bert Dingley up, and the home-made Stewart-Garbutt racer, John Pearson at the wheel, as starters. It was nip and tuck between the two for four miles. The home-made, double-opposed four-cylinder "Greyhound," as it was dubbed, picked up on the corners, but lost to Dingley on the stretches. In the back stretch of the last mile one of the cylinders of the Greyhound missed fire and Pearson waved his hand to signify that it was "all up" with him. At that instant, however, "Whistling Billy" backfired and the home-made cart came on and won the race. The time was 5:38½.

The one mile for cars costing less than \$1,500 brought out four aspirants and they were sent off from a rolling start. The Franklin had the pole, with the Reo next, the Premier in third place and the Ford on the outside. The Reo jumped forward and took the pole away from the Franklin at the first curve. Hanshue, the driver, did not manipulate his clutch right and lost the advantage. Dan Campbell, on the Ford, came across from his outside place and took the pole at the three-eighths pole and from then on was never headed. The Premier finished second, and the Franklin third. Time, 1:17½.

Roy Hanshue, 16 horsepower Reo, won with hands down the five mile for cars costing under \$2,500, although Dan Campbell, in the Ford, challenged several times. George Bradbeer (Premier), was third all the way, and the much heralded Napier runabout could do no better than to run last, Hamlin in the Franklin having dropped out. Time, 6:04½. There was practically nothing to the five-mile open for stock cars, but the Reo, driven by Shettler. He sailed across the finish line with

lee scuppers awash. The Ford followed second and the Premier third, the Franklin again seeking the hitching post. By way of diversion and to settle a private argument, Harry Olive (Stoddard-Dayton), and William Reuss (Olds), ran a mile. Half way around the Stoddard-Dayton dropped a spark plug and the Olds frisked up the stretch and across the tape alone, in 1:27½. This was, of course, not satisfactory, so they ran it over again. This time Olive won in 1:27½.

In a three-cornered pursuit race between the Ford, Napier and Franklin, the latter snapped a chain at the gun, so that the Ford had to go two-thirds of a mile to overhaul its opponent. It finally did after running seven and a half miles. Two motorcycle races completed the first day's program.

Rain broke up the meet on Saturday. Dingley set out with the idea of making a few records with "Whistling Billy," but after covering the first mile in 58½ seconds, thought the track was too slippery to risk his neck upon. John Pearson, in the home-made Stewart-Garbutt, had more nerve and reeled of the five miles in 4:55½. His fastest mile was caught officially at 0:58½, although several of the watches gave him 0:56½.

The most interesting race of the afternoon was the five-mile lap event, in which the cars scored at the end of each mile—3 points for first, 2 for second and 1 for third. The Ford had the pole with the Reo next and the Napier on the outside. The Reo beat the pistol to the tape and the judges started them over again, penalizing the transgressor by placing him on the outside. The Ford finished the first lap in front, but was beaten out in the second by the Reo. The Ford got back the lead in the third, but lost to the Reo again in the fourth. The Reo got the pole for good and all upon entering the last mile and won out by one point. Time, 5:56½.

An unlimited pursuit was won by the Ford, after a long run, overhauling the Napier at nine miles. Time, 11:51½. The Ford beat the Reo by four feet in the three-mile open. The time was 3:41½. The Reo won the last race by beating two motorcycles in a three-mile event. The time was 3:45. The summaries:

FIRST DAY — FRIDAY.

One mile, for cars costing less than \$1,500—Dan Campbell, 12 h. p. Ford, first; George Bradbeer, 16 h. p. Premier, second; Ralph C. Hamlin, Franklin, third. Time, 1:17½.

Five miles, for cars costing less than \$2,500—Roy Hanshue, 16 h. p. Reo, first; Dan Campbell, 12 h. p. Ford, second; George Bradbeer, 16 h. p. Premier, third. Time, 6:04½. Also ran—R. C. Hamlin, 12 h. p. Franklin.

Five miles open—L. T. Shettler, 16 h. p. Reo, first; Dan Campbell, 12 h. p. Ford, second; George Bradbeer, 16 h. p. Premier, third. Time, 6:13½. Also ran—R. C. Hamlin (Franklin).

One-mile match between Harry Olive (Stoddard-Dayton) and William Reuss (Olds)—Won by Olive. Time, 1:23½.

Unlimited pursuit—Dan Campbell, 12 h. p. Ford, first; J. A. Clairmont, 20 h. p. Napier, second. Distance, 7½ miles. Time not taken. Franklin broke down at start.

Three miles for motorcycles—C. W. Ridsden (Indian), first; E. W. Hoag (Thoroughbred), second; Ernest Bennett (Thoroughbred), third. Time, 3:52½. Fastest mile, 1:11½.

Five miles free-for-all—John Pearson, 20 h. p. Stewart-Garbutt, first; Bert Dingley, 20 h. p. White, second. Time, each mile, 1:09, 1:04, 1:03½, 1:04½, 1:17½. Total, 5:38½.

SECOND DAY — SATURDAY.

One mile exhibition by Bert Dingley, 20 h. p. White. Time, 0:58½.

Five mile exhibition by John Pearson, 20 h. p. Stewart-Garbutt. Time, each mile, 0:59½, 0:58½, 0:58½, 0:58½, 1:00½. Total, 4:55½.

Five-mile lap—Roy Hanshue, 16 h. p. Reo, first (13 points); Dan Campbell, 12 h. p. Ford, second (12 points); J. A. Clairmont, 20 h. p. Napier, third (5 points). Time, 5:56½. Fastest mile, 1:09½.

Unlimited pursuit—Dan Campbell, 12 h. p. Ford, first; J. A. Clairmont, 20 h. p. Napier, second. Distance, 9 miles. Time, 11:51½.

Three-mile open—Dan Campbell, 12 h. p. Ford, first; Roy Hanshue, 16 h. p. Reo, second. Time, 3:41½.

Three miles between automobile and motorcycles—Won by Roy Hanshue, 16 h. p. Reo. Time, 3:45.

Three miles for motorcycles—E. W. Bennett (Thoroughbred), first; P. W. Dinsmore (Thoroughbred), second; E. W. Hoag (Thoroughbred), third. Time, 3:59. Fastest mile, 1:15½.

Three miles consolation for motorcycles—C. W. Ridsden (Indian), first; George Hall (Motor-Racyle), second; Ralph Gould (Indian), third. Time, 3:56½. Fastest mile, 1:13½.

Changes in New York Club.

R. H. Johnston has been elected treasurer of the New York Motor Club, succeeding Frank J. Griffin, who has been made second vice-president. A. L. Kull and W. B. Hurlbut have been elected directors. W. J. P. Moore, the president, will act as delegate to the New York State Automobile Association. The club's annual test, which aroused so little interest last fall, will be held in May, while the Orphans' Day parade will take place in June.

Springfielders Select their Leaders.

The Springfield (Ohio) Automobile Club held its annual meeting and banquet last week and re-elected all the old officers as follows: President, A. F. Sparks; vice-president, P. A. Stanley; secretary, H. C. Downey.

MAKING THE STARTING EASIER

One Respect in Which no Advance has been Made—Methods in Use and Possible.

With possibly a single exception, the application of the internal combustion motor to the motor car, and the questions in connection with its use have been brought to a point where their ultimate and final disposition is only a matter of time and the working out of a legitimate process of evolution. The exception, however insignificant it may have appeared in the light of former difficulties, is by no means to be neglected now that they have been reduced in importance, but instead demands immediate attention. This is the matter of motor starting, for however little trouble it may give, the necessity still remains of turning it over by hand when it is desired to put it in motion. True, in a few cases machines are provided with some means for starting the motor without leaving the seat, but these are comparatively rare, and the methods used are, to say the least, crude and not of a piece with the mechanism used elsewhere in the machine.

There are three various means of starting an internal combustion motor of the four-cycle type, depending somewhat on the method of construction, and upon its arrangement, but each thoroughly practical in theory at least. The first, which is a legitimate outcome of the method of cranking by hand, is purely mechanical, the result being obtained either by the direct effort of the operator effected through the medium of some mechanism, or through the action of some form of stored energy such as a spring. The second, which is in general, applicable only to multiple motors, depends on the retention of the charges drawn into the cylinders after the ignition has ceased on stopping, and is commonly known as starting on compression. The third, on the other hand, depends on securing an artificial impulse in at least one cylinder in order to rotate the crank-shaft sufficiently to secure the completion of one complete cycle or less in another. This may be accomplished either by direct fluid pressure or by means of an artificial explosion produced by a special charge of some sort.

The first general method of starting consists in the employment of purely mechanical means of rotating the crankshaft, and in its simplest form consists in substituting for the crank some sort of mechanism which will enable the operator to do the same work without leaving his seat. This has been variously accomplished by the use of a flexible cable wound upon a drum which is unwound by pulling a lever or depressing a pedal, the cable being automatically re-

wound and the mechanism set for the next start as soon as the motor is in action. A far simpler method is that of connecting the starting lever or pedal with a ratchet mechanism which can be reached from the driver's seat. This has been done in runabouts for some time, and is seen in a modified and improved form on several multicylinder cars this year. Another mechanical method depends for its action upon the power of a long spiral spring which is unwound when a trip lever is pulled, thereby putting the motor in rotation, and which is automatically rewound and reset as soon as the regular motion of the car is fully established. Of this type, several examples are now on the market.

Starting on compression is now easily accomplished in all well built motors of more than two cylinders using some method of ignition, the current for which is supplied from a source external to the motor, and may be depended on in the majority of cases for a limited period after the motor has been stopped. After a comparatively short time, however, the leakage of the imprisoned charge passed the pistons so reduces the compression that the primary impulse is too weak to secure an effort great enough to swing the motor by the first compression of a new charge. Also, after the motor has been standing idle for any length of time, the supply of fuel in the carburettor becomes so stale that for the first two or three cycles, the charge is apt to be rather weak. So that except in cases where the starting is to be done frequently, the simple compression method is not wholly satisfactory. The reason why the use of this method is confined to motors of more than two cylinders is that when the ignition is cut off from a multicylinder motor, it comes to rest—other things being equal—with the charges in at least two cylinders on compression. In one of them the piston is part way down on the ignition stroke, while in the other, the piston is part way up on the compression stroke, and the compressions in the two tend to balance one another, stopping the pistons at corresponding points in the strokes. In single cylinder motors, and ordinarily in two-cylinder motors as well, the crank shaft comes to rest with the pistons down and the exhaust valves open, hence rendering self-starting impossible. But, in multiple machines, the likelihood of starting increases directly with the number of cylinders.

By the use of compressed air it is possible to get as many impulses as may be desired, and by means of a suitable arrangement of supplementary valves, to start the motor from the seat as often as is desired without reference to the method of shutting down, and regardless of the condition of the carburettor, the action otherwise being the same as when starting by means of a crank. This method, which is used quite generally on large stationary motors, is perfectly successful where the need of some starting device is sufficient to warrant the use of the

requisite additional mechanism, tankage, and so on. On such machines as use compressed air for brakes, gasoline feed, or other purposes, it is highly recommendable, and, besides, is not necessarily of a complex nature. Another method of securing an artificial primary impulse, is to induce an explosion by inserting into a breech-lock mechanism in one or more of the cylinders a cartridge charged with a slow-burning powder. Still another method which is much more recent than the last, and more readily adaptable to the needs of the motor car, is that of injecting a small quantity of acetylene gas into one or more of the cylinders in sufficient amount to secure a combustible charge when mixed with the atmospheric contents. This method which is at present used on but one car, so far as is known, has about it a good deal that is feasible. Carbonic acid gas also has been used in a similar way.

Considering the problem simply from the standpoint of the ideal, it is evident first of all, that the starting gear should be essentially simple and easy to build, besides being inexpensive; that it should be unfailing as far as its action may be made so independent of the motor itself, which is to be supposed to start readily on being rotated through not more than a single cycle of action before the first cylinder fires, no matter how long it has been standing; that it should be free to release as soon as the motor is again in action, and that it should be automatic as far as possible. Then, considering the method more in detail, it is probable that a natural division might be set up between machines started mechanically, and those requiring an artificial impulse for the purpose. For the need of simplicity above all else in cars of small power, would seem to dictate that in machines having motors of less than twelve horsepower, which could readily be turned over by means of suitable leverage without the aid of any power other than that of the operator's foot or hand, should be started by means of some simple ratchet and pawl mechanism actuated by a pedal or lever conveniently located. Cars of greater power, on the other hand, would seem to demand the use of some mechanism in which the effort would be generated either by mechanical means, or by means of an artificial impulse given within the cylinders. Of the former method, it is sufficient to say that the use of springs in mechanism of any sort is to be avoided as far as possible on general principles, which, apparently leaves the field open to the use of compressed air or some explosive mixture such as an artificial gas injected into one or more cylinders at the proper time and regulated automatically.

The sixty by thirty foot wall which comprised the northeast corner of the machine shop of the Mack Bros. Auto Car Works, at the foot of Tenth street, Allentown, Pa., fell one day last week. Several workmen narrowly escaped being killed.

THE HOLD-UP IN THE PARK

Being an Indian Story with Pictures, but Without Thrills—Why it Originated.

This is not a real Wild West hold-up of the old school, nor yet an attempt to modernize the methods of the highwayman and apply them to the occupants of the motor

expression of the delight of these children of the wild at being once more at large, but the occupants of the car were not quite certain of the harmless nature of the play, and so soon as they had recovered from the first shock of the surprise, they took to the foot path and left the red men in full charge of the plant. After the excitement had subsided somewhat, and explanations had they meant no harm; it was just a harmless

CONCERNING THE HOUSE CAR

Some of those in Use and Interesting Possibilities Suggested by Such Vehicles.

Wherever the idea of the motor house car has been suggested, the idea of being able to go when and where he listed without regard to railroads or hotels, and that without suffering the privations of camp life, has set the brain of the motorist in a whirl of expectation, and made him fairly dizzy for the time when he could climb in behind the wheel of his own land yacht, and go about wherever he would absolutely free to follow only the dictates of his own instincts. Nevertheless, with the possible exceptions of the one or two Pullman touring cars which have been built and which but partially served the purpose, albeit in none too successful a fashion, and the possible half dozen of veritable house cars which have been built and used abroad, the idea has not as yet been approximated in practice, easily possible though it may be to all intents and purposes.

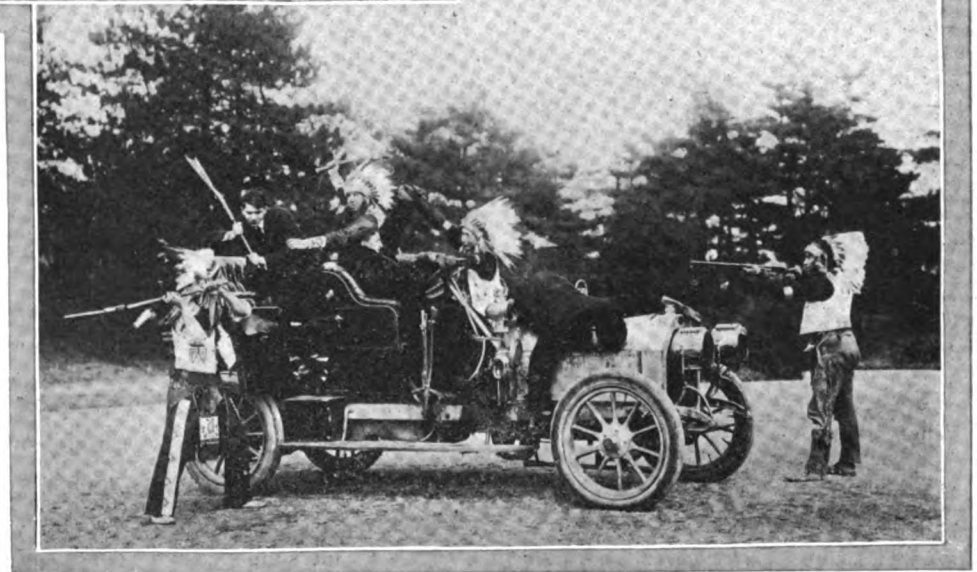
Many years ago the Duke of Oldenburg



car, nor yet even an adaptation of the Boston Tea Party game of anti-revolutionary fame, but just a quartet of harmless red men showing how they would have done it in the good old days before they had been civilized into a preference for the pursuits of peace and fire-water for the glorious conquests of war. The scene is Central Park, of course, and the substantial looking car which they are appropriating is none other than the Gobron-Brillie which E. V. Hartford, of the Hartford Suspension Company, of New York, has but recently brought to town.

It is a far cry for "Poor Lo" from the plains of Arizona and Southern New Mexico to "Little Old New York," and when it happens that a delegation of America's original settlers find themselves within the range of the Bowery's charmed influence, the delights of the first few hours soon give way to a terrible weariness and sense of oppression, for the unwonted freedom of the tomm, carries with it only freedom of limited action, not the boundless freedom of motion to which they have been accustomed, and so they soon began to feel themselves cooped up and confined in a durance all the more arduous because it is an oppression of the heart.

These four had found their way somehow to the park, and had just taken in a few refreshing breaths of the unlimited air and noted the fragrance of the evergreens, when along came the motor car. Of course,

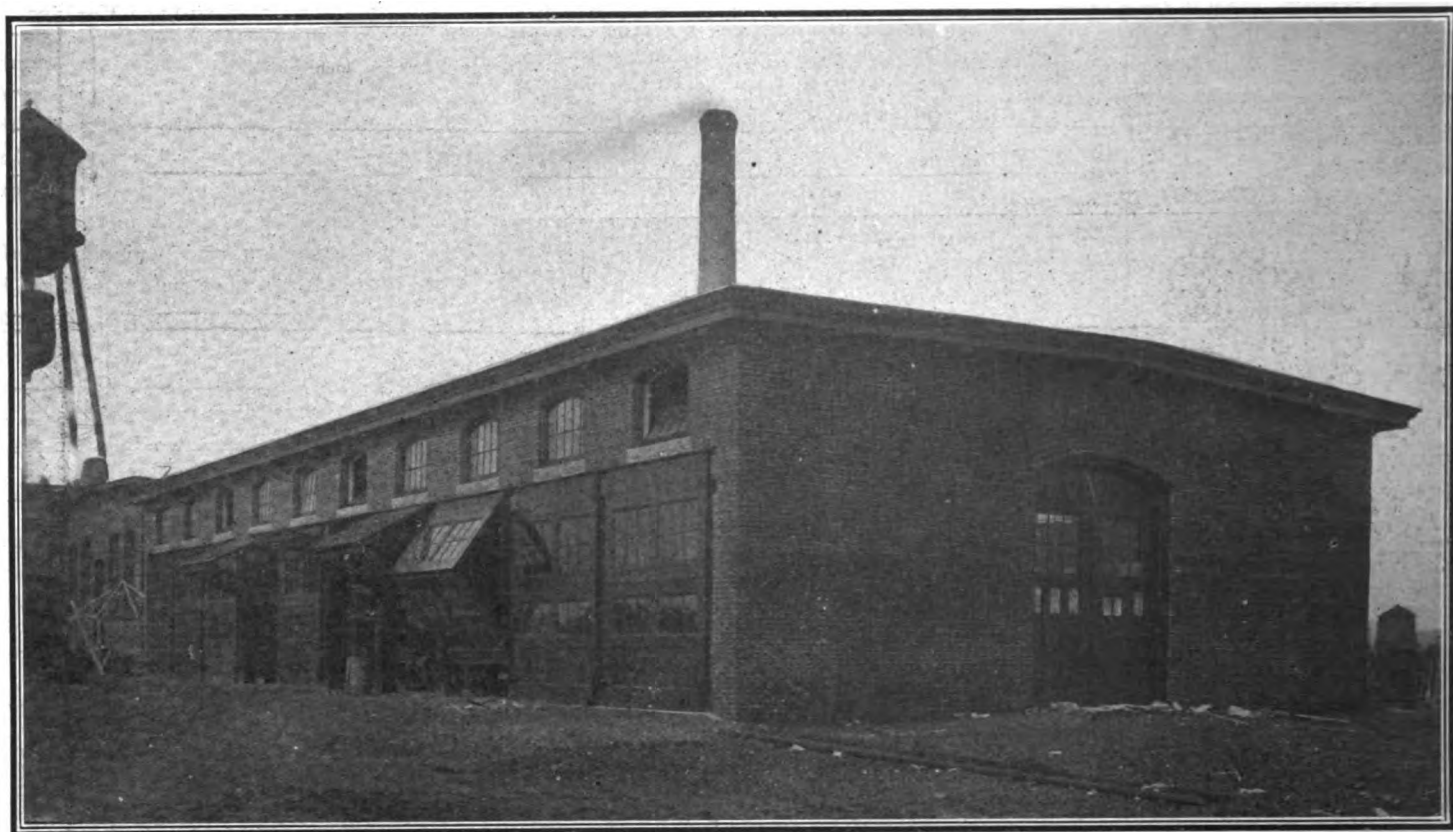


been made, however, they were treated to a good long ride, and then were returned to their stalls at the Sportsman's Show to resume their peaceful vocations of angling for American dollars with "Indian" wares.

These officers have been elected by the Jacksonville (Florida) Automobile and Motorboat Association: President, Charles A. Clark; first vice-president, Walter P. Corbett; second vice-president, W. R. Rannie; third vice-president, E. A. Groover; secretary-treasurer, Herbert A. Race; directors, H. D. McMillan, H. C. Hare, C. E. Garner and the officers.

equipped a big Serpollet steam car with everything required for traveling, and toured through the Caucasus, and his example was subsequently followed by others, notably M. Turgan, who traveled through North Africa and across Europe with his steam house car. Several machines of the type have been exhibited at the various French Salons in different years, and at one time the approaching popularity of the house car seemed so certain that the Home Car Club was formed in Paris with the idea of stimulating interest in this branch of the sport. Apparently, however, it has not met with any great amount of

Garage that Differs from Garages Generally.



support, as but little has been heard of it since its formation.

One of the most recent converts to this happy-go-lucky mode of travel is the Count de Sonnevoye, who, although a staunch advocate of the motor car, yet has a well developed bump of caution, and prefers to have his living apartments entirely independent of the propelling mechanism and hence perfectly free for adaptation to animal or other traction, should his motive power give out at any time. Consequently, he has had his house car proper constructed in the form of a giant trailer, very much after the style of the gypsy vans to be seen in England and on the Continent, only wrought out on a far more elaborate style. When traveling, a tractor is coupled on in front and the caravan moves on at a leisurely pace which is not too great to enable the occupants of the car to see all there is to be seen of the country.

The interior of the car is fitted up in very elaborate fashion, being divided into three compartments, one of which is fitted up with comfortable divans and serves by day as a lounging apartment, while at night it may be converted into a stateroom by the adaptation of sundry folding berths. The forward compartment serves as a dining room and contains a cupboard, stove and all the necessary furnishings, while just in the middle of the front bulkhead is a small melodion and over it a diminutive library of books. The servants quarters are in the rear, while the provisions are carried in compartments under the body.

Wherein the Locomobile Garage Differs.

Something of a novelty in garage construction has just been introduced by the Locomobile Company of Bridgeport, Conn., in the arrangement of an addition to the rapidly growing plant which has been completed within a few days. As will be seen from the illustration, one entire side of the addition, which, by the way is the second garage building put up at the Locomobile plant, consists of a series of well lighted doors, each sufficiently large to admit a standard sized car with top on. The method of opening the doors is peculiar in itself, and possesses the advantage of affording a shaded protection for the doorway when open.

The doors which are hinged at the top and in the centre, are suitably counterbalanced by weights, so that they may be moved readily at all times, their bottoms being held in guides fixed to the doorways. In this, not simply are they quite out of the way at all times, but advantage is taken of them to form awnings when they are raised. Thus the locomotive roundhouse principle is followed to a certain extent, in that little or no moving about of the cars within the building is necessary, and hence the available room may be used to the best possible advantage at all times.

Within, a mezzanine gallery runs across one end, equipped with lockers for the use of the drivers, while the stairway by which access to it may be had, is hinged and counterbalanced so that it may be swung up when in use, and the floor space thus

economised to the greatest possible extent. The floor is of concrete throughout the building, and eight pits are conveniently located. Another good feature is the location of an enclosed telephone booth at one end communicating with the office. The heating is done by forced draught system, a blower forcing air through a quadruple steam coil and thence through a large main running the entire length of the building and having various registers properly located.

The superior advantages of the separate compartment principle in garage construction have long been appreciated in the case of strictly public depots built on a large scale, where the purpose has been to give each individual subscriber the advantage of a private storage place without its drawbacks. But the gain to be had by providing means in the original arrangement so that each machine can be handled at will without disturbing any of the others, remains to be given its full value by the constructors of automobile repositories. It is a principle which is not to be lost sight of under any circumstances.

Establishment of automobile service from Manitowoc, Wis., to Mishicott and Kewaunee will be undertaken by a company which William C. Sicker, of Milwaukee, is forming. The company will conduct a general freight and passenger business. There is now no line from Kewaunee except by water and Mishicott cannot be reached except by team.

FREILINGHUYSEN REVISED

**Amended Bill Passes New Jersey Senate—
Greatly Modified, but Still Drastic—
The Changes that were Made.**

Despite the tremendous pressure brought to bear against the Freylinghuysen bill, it looks as if the amended measure or "Committee substitute," as it is styled, will be enacted by the New Jersey legislature. On Tuesday last, after minor amendments, it was passed by the Senate on second reading.

Although embodying the general form of Senator Freylinghuysen's original concoction, the letter and language of the substitute act prove it to be a vastly altered measure. While it remains drastic, much of the sting has been taken out of it.

Instead of a tax of 25 cents per horsepower on the owner and 50 cents per horsepower on the vehicle itself, the new act imposes an annual registration fee of \$1.00 on all drivers of cars not exceeding 30 horsepower and \$2.00 on owners of cars exceeding that horsepower. The annual license fee for the cars themselves is \$3.00 for those not exceeding 30 horsepower, and \$5.00 for those exceeding that limit of power.

The same rates apply alike to residents and non-residents. The original bill imposed a tax on non-residents of \$2.00 for a single day's use of the New Jersey roads, or \$1.00 per day for longer periods.

The new act also requires that non-residents constitute the New Jersey Secretary of State their attorney in order that he may accept for them legal services in the event of suits for damage.

The fee for manufacturers and dealers is reduced from \$50 to \$20 per year.

The age limit of 18 years is retained, and all applicants must provide their photographs and must undergo examination. On application, novices may obtain a written permit for a period of three weeks in which to learn the operation of an automobile, provided they are accompanied by a licensed driver.

Four-inch numbers are required front and rear; they must be displayed between 30 and 36 inches above the ground. The original bill required that the numbers in front be placed above the level of the tire and below the hood—an almost impossible position. One-inch numbers are also required on the lamps.

The prohibition of non-skid devices is made to apply solely to chains and even these may be used where there is one-inch of snow or ice on the road. The original act forbid the use of "chains and other metal devices."

Speed limits practically remain unchanged; that is, one mile in seven minutes through built-up portions of a town, city, etc., and a mile in three minutes in the

open country. The provision requiring that speed be reduced when within 200 feet of any horse or other beast of burden is retained, but instead of a mile in seven minutes the reduced speed is made a mile in five minutes and twenty miles an hour is made legal to pass a vehicle going in the same direction. After passing such a vehicle, however, speed must be reduced forthwith.

Arrests without warrant, against which the automobilists aroused such a clatter, are retained in the substitute bill, as is also the provision permitting arrests within three months after the filing of a complaint.

The new bill also perpetuates the original Freylinghuysen idea of permitting justices of the peace, or any other committing magistrate, to revoke the license of an offender, but the idea itself has been "toned down" very substantially. Previously "any old" magistrate could revoke a license for "any old" reason, and not even a verdict of "not guilty" on appeal to the Court of Common Pleas would avail to restore the license. As amended, the bill permits magistrates to take such action only in the event of wilful violations (note the word wilful), and states that a successful appeal shall void such revocation. The commissioner of motor vehicles, who may also refuse to issue and who may revoke a license at will, is likewise empowered to validate a license which has been revoked by a magistrate or to grant a new license.

The punishment and penalties originally proposed by Senator Freylinghuysen have undergone much chastening. The author of the bill originally proposed an arbitrary fine up to \$500 or imprisonment for 60 days for any violation of the act. The substitute bill provides a fine not exceeding \$10 for failure to carry lamps and a fine of \$25 is the limit for violation of the rules of the road and for failure to stop in the event of accident. For use of chains on tires, except as provided, a fine not exceeding \$50 may be imposed. For violation of the speed laws, and for practically all other offenses, the punishment is a fine not exceeding \$500 or imprisonment for 60 days.

As amended, the bill in full is as follows:

PART I.—DEFINITIONS.

1. As used in this act:

(1) The term "motor vehicle" includes all vehicles propelled otherwise than by muscular power, excepting such vehicles as run only upon rails or tracks.

(2) The term "motorcycle" includes only motor vehicles having pedals and saddle with driver sitting astride.

(3) The term "automobile" includes all motor vehicles excepting motorcycles.

(4) The word "magistrate" shall be deemed and understood to mean and include all justices of the peace, judges of the city criminal courts, police justices, recorders, mayors and all other officers having the power of a committing magistrate.

2. Automobile fire engines and such self-propelling vehicles as are used neither for the conveyance of passengers nor for the transportation of freight, such as steam road rollers and traction engines, are excepted from the provisions of this act.

PART II.—THE CONSTRUCTION AND EQUIPMENT OF MOTOR VEHICLES.

3. Every motor vehicle must be equipped with a plainly audible signal trumpet.

4. (1) Every automobile shall carry, during the period from one hour after sunset to one hour before sunrise, and whenever fog renders it impossible to see a long distance, at least two lighted lamps,

showing white lights, visible at least two hundred and fifty feet in the direction towards which said automobile is proceeding, and shall also exhibit one red light visible in the reverse direction. Upon the fronts of the two aforesaid lamps showing white lights shall be displayed, in such a manner as to be plainly visible when such lamps are lighted, the number of the registration certificate issued as in this act provided, the same to be in Arabic numerals, not less than one inch in height.

(2) Every motorcycle shall carry, during the period from one hour after sunset to one hour before sunrise, and whenever fog renders it impossible to see a long distance, at least one lighted lamp, showing a white light visible at least two hundred feet in the direction toward which the motorcycle is proceeding.

5. Automobiles of more than ten horsepower shall be provided with at least two brakes, powerful in action and separated from each other, of which one brake must act directly on the drive wheels or on the parts of the mechanism which are firmly connected with the wheels. Each of the two brakes must suffice alone to stop the carriage within a proper time. One of the brakes must be so arranged as to be operated with the foot; provided, however, that on automobiles not exceeding eight horsepower one brake will be sufficient.

Motorcycles shall be provided with at least one brake, which may be operated by hand.

6. No motor vehicle shall be fitted with a chain when used upon macadam or other made roads, except upon natural dirt, asphalt, cobble, Belgium block or vitrified brick pavements; provided, however, that tires may be fitted with a chain when used upon roads covered with a coating of at least one inch of snow or ice.

7. Every motor vehicle must have devices to prevent excessive noise, annoying smoke and the escape of gas and steam, as well as the falling out of embers or residue from the fuel.

PART III.—DEPARTMENT OF MOTOR VEHICLE REGISTRATION AND REGULATION.

8. The Secretary of State shall forthwith organize in connection with the Department of State the department of motor vehicle registration and regulation. He shall provide suitable quarters for the same and shall furnish all necessary supplies and equipment for the proper enforcement of the provisions of this act. He shall approve all bills for disbursement of money under any of the provisions of this act, which shall be paid by the State Treasurer, upon the warrant of the Comptroller out of any appropriation regularly made therefor.

9. The assistant Secretary of State shall be ex-officio commissioner of motor vehicles, and shall have personal charge and supervision of the enforcement of the provisions of this act. The Secretary of State shall appoint a chief inspector of motor vehicles, who shall be chief clerk of the department, and who shall have practical knowledge of the mechanical arrangement and capabilities of all kinds of motor vehicles, and be capable to pass upon the efficiency of motor vehicles and the competency of motor vehicle drivers. The Secretary of State shall also appoint as many inspectors, not exceeding twenty-one, as may be necessary in detecting violations of this act, in obtaining evidence of violations and otherwise assisting in the enforcement of the act. He shall also provide the clerical assistance necessary to carry into effect the provisions of this act. He shall fix the compensation of all inspectors, clerical assistants and others employed under this act; the salary of inspectors, however, shall not exceed three dollars per day. The compensation of the commissioner of motor vehicles shall be fifteen hundred dollars per annum, in addition to any compensation he may receive by reason of any statute fixing the compensation of assistant Secretary of State, and that of the chief inspector shall be fifteen hundred dollars per annum.

10. The commissioner of motor vehicles shall be authorized, and full power and authority are hereby given to him, to designate the chief of police and the lawful deputy of said chief of police of any municipality in this State, or any other proper person, to be the agent of the said commissioner of motor vehicles, for the registering of motor vehicles and issuing registration certificates, and for the examining of applicants for licenses to drive motor vehicles, and the granting of licenses to said applicants, subject to the requirements of this act and to such rules and regulations as shall be imposed by the commissioner; and any chief of police and deputy who may be so designated are hereby authorized and required to act accordingly and until the said authority so to act is revoked by the said commissioner. The fee allowed such agent for registration certificates so issued by him, and for every license so granted by him, shall be fixed by the motor vehicle inspector, the same to be retained from the registration fee or the license fee paid to him; provided, however, that every registration and registration certificate and every license to drive motor vehicles shall be subject to revocation by the said commissioner of motor vehicles at his discretion, and if a driver of motor vehicles shall have had his license revoked, a new license granted to him within one year thereafter shall be void and of no effect unless it shall be granted by the said commissioner of motor vehicles in person; and if the registration or registration certificate of any motor vehicle shall have been revoked, a new registration made, or new registration certificate issued, within one year thereafter shall be void and of no effect unless the new registration shall be made and the new certificate issued under the personal direction of the commissioner of motor vehicles.

11. The commissioner of motor vehicles shall be authorized, and full power and authority are hereby given to him, to license, at his discretion and upon payment of the lawful fee, any proper person of the age of eighteen years or over to be a motor vehicle driver, said commissioner or his agent having first examined said person and being satisfied of his ability as an operator, which operation shall include a test of the knowledge on the part of the said person of such portions of the mechanism of motor vehicles as is necessary, in order to insure the safe operation of a vehicle of the kind or kinds indicated by the applicant, and the said applicant having practically demonstrated his ability, by means of a trial trip, to conduct a vehicle of the class designated, and the said commissioner of motor vehicles may, in his discretion, refuse to grant a license to drive motor vehicles to any person who shall, in the estimation of said commissioner, be an improper person to be granted such a license; and the said commissioner shall have power to grant a registration certificate to the owner of any motor vehicle, application for registration having properly been made and the fee therefor paid, and the vehicle be of a type that complies with the requirements of this act. But it shall be unlawful for the said commissioner of motor vehicles to refuse registration to any vehicle that, in his estimation, is not a proper vehicle to be used upon public roads and highways of the State.

12. The commissioner of motor vehicles shall have such powers and duties as are in this act given and imposed, and shall collect such data with respect to the proper restrictions to be laid upon motor vehicles, and the use thereof upon the public roads, turnpikes and thoroughfares, as shall seem to be for the public good, and under the direction of the Secretary of State shall report to each Legislature the operations of his office for the year ending on the next preceding twenty-first day of December. It shall be his duty to attend to the enforcement of the provisions of this act.

13. The commissioner of motor vehicles shall keep a record of all his official acts, and shall preserve copies of all decisions, rules and orders made by him, and shall adopt an official seal. Copies of any act, rule, order or decision made by him, and of any paper or papers filed in his office, may be authenticated under said seal, and when so authenticated shall be evidence equally with and in like manner as the originals.

14. Motor vehicle inspectors may be appointed, as provided in section nine of this act, and shall be presented with a badge indicative of their office, and when wearing such badge on the left breast of the outermost garment shall have power to stop any motor vehicle and examine the same to see that it complies with the requirements of this act, whether in matter of equipment, identification or otherwise; to require the production of the license of the driver; to arrest, without warrant, for violations of this act committed in their presence, and generally to act as special officers for the enforcement of the provisions of this act and for the detection and arrest of those who violate or infringe upon the provisions hereof.

PART IV.—THE OPERATION OF MOTOR VEHICLES.

15. No person shall drive a motor vehicle, the owner of which vehicle shall not have complied with the provisions of this act concerning the proper registration and identification of the same; nor shall any person drive a motor vehicle which shall display on the front or back thereof a fictitious number, or a number other than that designated for such motor vehicle in the New Jersey registration certificate of such motor vehicle.

16. (1) Every resident of this State who is the owner of an automobile, and every non-resident whose automobile shall be driven in this State, shall annually file in the office of the commissioner of motor vehicles, or with the lawful agent of said commissioner, a statement in writing, containing the name and address of such owner, together with a brief description of the character of such automobile, including the name of the maker and the manufacturer's number of the automobile, if number there be, and the rated horsepower of the automobile, and shall pay annually to the commissioner of motor vehicles, or his lawful agent, a registration fee of three dollars for each motor vehicle having a rating of less than thirty horsepower, and five dollars for each motor vehicle having a rating of thirty horsepower or more; and if an automobile has two ratings of horsepower, the registration fee shall be based upon the highest rating. The commissioner of motor vehicles shall issue for each automobile so registered a certificate properly numbered, stating that such automobile is registered in accordance with this section, and shall cause the name of such owner, with his address, the number if his certificate, and the description of such automobile or automobiles, to be entered in alphabetical order of the owners' names in a book to be kept for that purpose. Each owner having a residence outside the State shall file with the Secretary of State a duly executed instrument, constituting the Secretary of State and his successors in office the true and lawful attorney upon whom all original process in any action or legal proceeding for damages, caused by the operation of his registered motor vehicle within this State, against such owner may be served, and therein shall agree that any original process against such owner shall be of the same force and effect as if served on such owner within this State; the service of such process shall be made by leaving a copy of the same in the office of the Secretary of State with a service fee of two dollars to be taxed on the plaintiff's costs of suit. Said commissioner of motor vehicles shall forthwith

notify such owner of such service by letter to him addressed at the post-office address stated in his application; provided, however, that the commissioner of motor vehicles may refuse registration in the case of any automobile that shall not comply with the requirements of this act, or that shall seem to him unsuitable for use on the public roads and highways of this State. Upon any and every transfer of a registered automobile by the owner thereof, in whose name the same is registered, the said registration and certificate thereof shall forthwith be and become void; but the same may be validated by the endorsement of the commissioner of motor vehicles, the purchaser having made written application therefor and paid a transfer fee of one dollar. Every registration shall expire and the certificate thereof become void at the expiration of one year from the date thereof, subject to renewal by the commissioner of motor vehicles upon the filing of the proper statement and the payment of the registration fee by the owner of the automobile.

(2) Every resident who is the owner of a motorcycle, and every non-resident whose motorcycle shall be driven in this State, shall pay an annual registration fee or license fee of one dollar for such motorcycle, which shall include the right of such person to drive such motorcycle within this State without an examination of his ability to run motorcycle, unless such an examination be required by the commissioner of motor vehicles.

(3) Every manufacturer of or dealer in automobiles, instead of registering each automobile owner or controlled by him, may make application, as hereinbefore provided in this section, for a registration number, and the written statement, in addition to the matters hereinbefore contained, shall state that he is a manufacturer or dealer, as the case may be, and that he desires to use a single number for all automobiles owned or controlled by him; and if thereupon the commissioner of motor vehicles, if satisfied of the facts stated in said application, shall issue a certificate, as hereinbefore set forth, assigning the same a number as hereinbefore set forth, which certificate shall contain the statement that the same is issued to the applicant as a manufacturer or dealer, as the case may be, and that one certificate shall cover and be valid for all automobiles owned or controlled by such manufacturer or dealer until or sold or let for hire, or loaned for a period of not more than five successive days. All such automobiles shall be regarded as registered under such general number; provided, and if, in addition to the registration number displayed on the front and back of the car, as hereinafter provided, there shall be added the letter "M." of equal size and prominence; and provided, further, that not more than five automobiles, owned or controlled by the same manufacturer or dealer in automobiles, shall be in operation at the same time under the same number. The fee for every such manufacturer's or dealer's certificate shall be twenty dollars.

(4) No registration or registration certificate made or issued under any former act shall be valid after July first, nineteen hundred and six.

17. No person shall hereafter drive an automobile upon any public street, public road, or turnpike, public park or parkway, or public driveway or public highway, in this State unless licensed to do so in accordance with the provisions of this act, and unless he shall have upon his person the license to him granted. No person under the age of eighteen years shall be licensed to drive automobiles, nor shall any person be licensed to drive automobiles until he shall have passed a satisfactory examination as to his ability as an operator, which examination shall include a test of the knowledge on the part of said person of such portions of the mechanism of automobiles as is necessary in order to insure the safe operation of a vehicle of the kind or kinds indicated by the applicant, as well as a practical demonstration by means of a trial trip. Licenses and the fees therefor shall be rated according to the horsepower of automobiles and the license, for one year from the date thereof, shall entitle the licensee to drive any date thereof, shall entitle the licensee to drive any registered automobile of the class for which it is granted, or of a class of a smaller horsepower. Automobiles of a horsepower not exceeding one horsepower shall be rated Class 1, and in like manner the class of every automobile shall be determined by the number of horsepower of the vehicle, and the annual fee for a license to drive any automobile of a rating less than thirty horsepower shall be one dollar, and two dollars for each automobile having a rating of thirty horsepower or more, and if an automobile shall have two ratings of horsepower, the license fee shall be based upon the highest rating. Every applicant for a license to drive a motor vehicle must furnish the examiner with a photograph of a size suitable for attaching to the license, which photograph must be an excellent likeness of said applicant. When an automobile driver, upon passing a satisfactory examination, shall have been once granted a license hereunder, no further examinations shall be required for a renewal of the said license, unless the commissioner of automobiles shall deem it necessary; provided, however, it shall be lawful for the commissioner of motor vehicles at his discretion to issue to any person a written permit, under the hand and seal of said commissioner, allowing the said person, for the purpose of fitting himself to become a motor vehicle driver, to operate a motor vehicle for a specified period of not more than three weeks, while in the company of and under the supervision of a licensed motor vehicle driver; and such permit, under the hand and seal of the commissioner of motor vehicles, shall be sufficient license for the said person to operate a motor vehicle in this State during the period specified, while in the

company of and under the control of a licensed motor vehicle driver of this State; and provided further, that the said person, as well as such licensed motor vehicle driver, shall be held accountable for all violations of this act committed by the said person while in the presence of such licensed motor vehicle driver.

18. Each license to drive an automobile shall specify the maximum horsepower of the automobile allowed to be driven thereunder, and shall have firmly attached thereon a photograph of the licensee (furnished by the licensee, as hereinbefore provided), which photograph must be an accurate likeness of the said licensee.

19. No intoxicated person shall drive a motor vehicle.

20. No person shall drive a motor vehicle without the consent of the owner.

PART V.—IDENTIFICATION MARKS OF MOTOR VEHICLES.

21. The owner of each and every automobile which shall be driven upon the public streets, public roads, turnpikes, parks, public parkways, public driveways or public highways in this State shall have the number of the registration certificate, issued as in this printed act provided, upon both the front and back of every automobile, stationary, in a conspicuous place, at least thirty inches and not more than thirty-six inches above the level of the ground, kept clear and distinct and clean of grease, dust or other blurring matter, so as to be plainly visible at all times during daylight; such numbers to be separate Arabic numerals and not less than four inches in height, the strokes to be in width not less than one-half an inch; and there shall not be placed upon the front or rear of said vehicle any other numbers; and when the number of the registration certificate shall include a letter or letters, such letter or letters are to be not less than four inches in height and the strokes to be not less than one-half inch in width.

PART VI.—USE OF ROADS AND HIGHWAYS.

22. (1) Drivers of motor vehicles, whether of burthen or pleasure, using any of the turnpikes or public roads in this State, when met by another motor vehicle, or by a carriage, sleigh, or sled, shall keep to the right, and when overtaken by another motor vehicle, carriage, sleigh or sled they shall likewise keep to the right, so as in both cases to permit such motor vehicle, carriage, sleigh or sled, either met or overtaken, to pass uninterrupted.

(2) No owner or purchaser or driver of a motor vehicle who shall have complied with the requirements and provisions of this act shall be required to obtain any other license or permit to use or operate the same, nor shall such owner or purchaser or driver be excluded or prohibited from or limited in the free use thereof, nor limited as to speed upon any public street, avenue, road, turnpike, driveway, parkway or other public place, at any time, when the same is or may hereafter be opened to the use of persons having or using other carriages, nor be required to comply with other provisions or conditions as to the use of said motor vehicle, except as in this act provided; provided, however, that nothing in this section contained shall be construed to apply to or include any speedway created and maintained in pursuance of an act of the Legislature of the State of New Jersey entitled "An act to provide for the construction and maintenance of speedways in the counties of this State," approved March nineteenth, one thousand nine hundred and two; nor to any parks or parkways created and maintained in accordance with an act of the Legislature of the State of New Jersey entitled "An act to establish public parks in the counties of this State and to provide for the acquirement, improvement and regulation of the same," approved March twentieth, one thousand nine hundred and two. No city, town, township, borough or other municipality shall have power to make any ordinance, by-law or resolution limiting or restricting the use or speed of motor vehicles, and no ordinance, by-law or resolution heretofore or hereafter made by any city, town, township, borough or other municipal or local authority by whatever name known or designated in respect to or limiting the use or speed of motor vehicles shall have any force, effect or validity.

(3) No person shall drive a motor vehicle upon any public street, public highway, public road, public parkway, turnpike or public driveway in this State in a race or on a bet or wager.

(4) Every driver of a motor vehicle after causing an accident by collision or otherwise injuring any person, horse or vehicle shall forthwith bring his motor vehicle to a full stop, return to the scene of accident and give to any proper person demanding the same his name, the number of his driver's license and the registration number of the motor vehicle.

PART VII.—PROVISIONS CONCERNING SAFETY OF TRAFFIC.

23. The following rates of speed may be maintained, but shall not be exceeded, upon any public street, public road or turnpike, public park or parkway, or public driveway, or public highway, in this State by anyone driving a motor vehicle.

(1) A speed of one mile in seven minutes upon the sharp curves of a street or highway, or when turning a corner, and a speed of one mile in five minutes at the junction or intersection of a prominent cross-road where such a street, road or highway passes through the open country. The term "open country" meaning where houses are an average more than one hundred feet apart.

(2) A speed of one mile in five minutes where such street or highway passes through the built-up portion of a city, town, township, borough or village where the houses are an average less than one hundred feet apart.

(3) A speed of one mile in five minutes within two hundred feet of any horse or other beast of draught or burden upon the same street or highway, shall be lawful in the open country, as may be necessary in order to pass a vehicle traveling in the same direction, but the speed shall be diminished forthwith when the vehicle shall have been passed.

(4) Elsewhere and except as otherwise provided in subdivisions one, two and three of this section a speed of one mile in three minutes; provided, however, that nothing in this section contained shall permit any person to drive a motor vehicle at any greater speed than is reasonable, having regard to the traffic and use of highways, or so as to endanger the life and limb of any person, or so as to injure the property of any person; and it is further provided, that nothing in this section contained shall affect the right of any person injured, either in his person or property, by the negligent operation of a motor vehicle to sue and recover damages as heretofore; and provided further, that the foregoing provisions concerning the speed of motor vehicles shall not apply to any speedway built and maintained for the exclusive use of motor vehicles, if the said speedway at no point crosses any public street, avenue, road, turnpike, driveway or other public thoroughfare or any railroad or railway at grade, the said speedway having been constructed with the permission of the commissioners or the board of freeholders, as the case may be, of the county or counties in which said speedway shall be located; and provided further, that every person driving a motor vehicle shall, at request or upon signal by putting up the hand or otherwise from a person riding or driving a horse in the opposite direction, cause the motor vehicle to stop and remain stationary so long as may be necessary to allow said horse or horses to pass.

24. If a physician shall have his motor vehicle stopped for exceeding the speed limit while he is in the act of responding to an emergency call, the registration number of the vehicle and the driver's license number may be inspected and noted, and the physician shall then be allowed to proceed in the vehicle to his destination, and subsequently such proceedings may be taken as would have been proper had the person violating the provisions as to speed not been a physician.

25. Motor vehicles belonging to the military establishment, while in use for official purposes in time of riot, insurrection or invasion, are exempt from the provisions of this act pertaining to speed.

PART VIII.—PROCEEDINGS.

26. (1) A complaint having been made in writing and duly certified, that any person has violated any of the provisions of this act, any magistrate of the county in which the offense is committed may, within three months after the commission of said offense, issue a warrant directed to any constable, police officer, motor vehicle inspector or the commissioner of motor vehicles of this State, for the arrest of the person so charged; and the magistrate shall state what section or provision of this act has been violated by the defendant, and the time and place of said violation, and upon the return of said warrant the said magistrate shall proceed, in a summary way, to hear and determine the guilt or innocence of such person, and, upon conviction, shall impose upon the person so convicted the penalty, by this act prescribed, together with the costs of prosecution for such offense. If any person shall fail to pay the penalty or penalties so imposed, together with the costs of prosecution, the said magistrate may commit him to the county jail of the county where such conviction is had, for a period not exceeding ninety days, or until said penalty and costs are paid.

(2) Such magistrate, upon receiving complaint in writing, duly verified, of the violations of any provision of this act by any corporation, is hereby authorized and required to issue a summons directed to any constable, police officer, inspector of motor vehicles, or the commissioner of motor vehicles, of this State, requiring such corporation to be and appear before said magistrate on a day therein named, to answer to said complaint, which said summons shall be served on the president, vice-president, secretary, superintendent or manager of such corporation, at least five days before the time of the appearance mentioned therein, and thereafter all proceedings shall be the same as individuals against individuals, except where a different procedure is provided by this act.

27. Any hearing to be held pursuant to this act shall for good cause shown, be adjourned for a period of not exceeding thirty days from the return of any warrant, from the time of appearance mentioned in any summons, or from the date of any arrest without warrant, as the case may be, but in such case it shall be the duty of the magistrate to detain the defendant in safe custody, unless he shall enter into a bond to the State of New Jersey, with at least one sufficient surety, in an amount not exceeding five hundred dollars conditioned for his appearance on the day to which the hearing may be adjourned, and thence from day to day, until the case is disposed of; and such bond, if forfeited, may be prosecuted by a commissioner of motor vehicles in any court of competent jurisdiction; provided, however, that in lieu of said bond the person under arrest may leave with the magistrate

the motor vehicle owned or driven by the said persons.

28. The defendant in any proceedings instituted under this act, may appeal from the judgment or sentence of the magistrate to the Court of Common Pleas of the county in which such proceedings shall have taken place, provided, the said defendants shall, within ten days after the date of judgment deliver to the magistrate a bond to the State of New Jersey, of such amount as the magistrate shall direct, not exceeding the amount of five hundred dollars, with at least one sufficient surety, conditioned to stand to and abide by such further order or judgment as may thereafter be made against the said party; and provided further, that if the said magistrate shall have imposed a sentence of imprisonment, the defendant shall be imprisoned forthwith upon the imposing of said sentence; but that an appeal properly taken, in accordance with the provisions of this act, shall be a stay upon the further enforcement of the sentence of imprisonment, as well as of such other judgment as may be pronounced; and provided further, that in lieu of the appeal bond in this section specified, the defendant may leave with the magistrate the motor vehicle owned or operated by the said defendant.

29. Whenever an appeal shall be taken, as aforesaid, it shall be the duty of the magistrate to send all papers, and money, if any, deposited according to the provisions of this act, together with a transcript of the proceedings in the case, to the next Court of Common Pleas, of the said county, which court shall, de novo, and in a summary way, try and determine all such appeals.

30. Proceedings under this act may be instituted on any day of the week, and the institution of such proceedings on Sunday shall be no bar to the successful prosecution of the same; and any process served on Sunday shall be as valid as if served on any other day of the week.

31. All proceedings for the violation of the provisions of this act shall be entitled and shall run in the name of the State of New Jersey, with the commissioner of motor vehicles or a motor vehicle inspector, or a police officer, or a constable, or such other person as shall by complaint institute the proceedings as prosecutor; and any magistrate may, at his discretion, refuse to issue a warrant on the complaint of any person other than the commissioner of motor vehicles or a motor vehicle inspector, until a sufficient bond to secure the costs shall have been executed and delivered to the said magistrate.

32. (1) Any constable, or police officer, or motor vehicle inspector or the commissioner of motor vehicles is hereby authorized to arrest without warrant any person violating in the presence of such constable, or police officer or motor vehicle inspector or the commissioner of motor vehicles any of the provisions of this act, and to bring the defendant before any magistrate of the county where such offense is committed. The person so offending shall be detained in the office of the magistrate until the officer making such arrest shall make oath of affirmation, which he shall do forthwith, declaring that the person under arrest has violated one or more of the provisions of this act and specifying the provision or provisions violated, whereupon said magistrate shall issue a warrant returnable forthwith, and the said magistrate shall proceed summarily to hear or postpone the case as provided in sections twenty-six and twenty-seven of this act.

(2) Any motor vehicle inspector, or the commissioner of motor vehicles is hereby authorized to stop on signal any person driving a motor vehicle and require of him the production of his license to drive motor vehicles, and such person shall forthwith produce his license for inspection; and if any person driving a motor vehicle shall, upon such a demand, fail or refuse to produce his license, he may be forthwith arrested by said officer without a warrant and taken before a magistrate and charged with the offense of driving a motor vehicle without a license; provided, however, the said officer shall forthwith, and upon request of the person so stopped, exhibit his official badge as evidence of his appointment and authority.

33. A warrant issued by any magistrate in accordance with the provisions of this act, shall be valid throughout the State, and any officer who has power to serve the said warrant and make arrest thereon in the county where the same shall have been issued, shall have like power to serve said warrant and make arrest thereon in any of the several counties of this State. If any person shall be arrested for a violation committed in a county other than that in which the arrest shall take place, the person so arrested may demand to be taken before a magistrate of the county in which the arrest may have been made for the purpose of making a cash deposit, or of entering into a recognizance with sufficient surety; whereupon the officer serving the said warrant shall take the person so apprehended before a magistrate of the county in which the arrest shall have been made, who shall thereupon fix a day for the matter to be heard before the magistrate issuing the said warrant, and shall take from the person apprehended a cash deposit or recognizance to the State of New Jersey with sufficient surety or sureties for the appearance of the said person at the time and place designated in accordance with the provisions of section twenty-seven of this act; the cash deposit or recognizance so taken shall be returned to the magistrate issuing the warrant, to be retained and disposed of by him as by this act provided.

34. The same fees shall be allowed the magistrate and officers making an arrest in proceedings under this act as are allowed for like services in the small cause court and shall be paid by the defendant if

the defendant be found guilty of the charge laid against him. If the defendant be found not guilty of the charge or charges laid against him, then the costs must be paid by the prosecutor, except that when in such instances the commissioner of motor vehicles or any motor vehicle inspector, shall have been the prosecutor, then the costs laid upon the prosecutor shall be paid by the commissioner of motor vehicles from the moneys remaining in his hands from the payment of registration fees, license fees or otherwise.

PART IX.—PUNISHMENTS AND PENALTIES.

35. (1) Any person who shall be convicted of violating any of the provisions of section fifteen, section sixteen, section seventeen, section nineteen, section twenty, section twenty-one, subdivision (three) of section twenty-two or section twenty-three, of this act, shall be subject to a fine or not more than five hundred dollars or to imprisonment in the county jail for a period not exceeding sixty days.

(2) Any person who shall be convicted of violating any of the following named provisions of this act shall be subject to the penalties here specified:

Of section four, a fine not exceeding ten dollars.

Of section six, a fine not exceeding fifty dollars.

Of subdivisions one, two and four of section twenty-two, a fine of not exceeding twenty-five dollars.

36. It shall be lawful for a magistrate before whom any hearing under this act shall be had, to revoke the license of any person to drive motor vehicles when such person shall have been guilty of willful violation of the provisions of this act as shall in the discretion of said magistrate justify such revocation, but the appeal of the matter to the Court of Common Pleas shall act as a stay upon the said revocation and the Court of Common Pleas upon the appeal of the said matter shall have the power to void the said revocation; and the commissioner of motor vehicles shall at all times have the power to validate a license that has been revoked, or to grant a new license to any person whose license to drive motor vehicles shall have been revoked.

PART X.—MISCELLANEOUS.

37. Moneys received in accordance with the provisions of this act, whether from fines, penalties, registration fees, license fees or otherwise, shall be accounted for and forwarded to the commissioner of motor vehicles, and by him paid over to the Treasurer of the State of New Jersey to be appropriated annually to the Commissioner of Public Roads, to be used as a fund for the repair of the improved roads throughout the State, and to be by the said commissioner apportioned once each year among the several counties of this State according to the mileage of improved roads in each county, the share apportioned each county to be used for the repair of improved roads in that county under the direction of the Commissioner of Public Roads or his authorized representatives, and to be paid in the same manner as State funds are paid for the improvement of the public roads under the act entitled "An act to provide for the permanent improvement of public roads in this State."

38. The Commissioner of Public Roads shall be authorized, and full power and authority are hereby given to him to have erected at such points throughout the State as to him shall seem necessary, cautionary warnings of dangerous crossings, steep declivities or other irregularities or perils of the roadway, at a cost, however, not to exceed, in the aggregate, three thousand dollars.

39. When any motor vehicle shall have been deposited under this act in lieu of bond, this said motor vehicle shall be held the property of the State of New Jersey, subject to the same conditions as would govern the bond under like circumstances, and may be redeemed by the person depositing the same upon the delivery of the requisite bond or upon paying such fine and submitting to such penalty as may be imposed; and unless the motor vehicle so deposited in lieu of bond shall be redeemed within ten days next following the date of the final determination of the matter, it shall be lawful for the commissioner of motor vehicles to sell the same at public auction and apply the net proceeds of said sale (the expenses of the matter having been deducted), as set forth in section thirty-seven hereof.

40. In case for any reason any section or any provision of this act shall be questioned in any court, and shall be held to be unconstitutional or invalid, the same shall not be held to affect any other section or provision of this act.

41. This act shall take effect on July first, one thousand nine hundred and six; provided, however, that the organization of the department of motor vehicle registration and regulation shall be effected forthwith, and the registration of motor vehicles and licensing of drivers hereunder may be permitted for the convenience of owners and drivers of motor vehicles at such earlier date than the said July first, one thousand nine hundred and six, as the commissioner of motor vehicles may designate.

42. All acts and parts of acts contrary to and inconsistent herewith are hereby repealed.

"The A. B. C. of Electricity" will aid you in understanding many things about motors that may now seem hard of understanding. Price, 50c. The Motor World Publishing Co., 154 Nassau Street, New York City. ***

WHEN THE LADY'S ABROAD

The Charms of one in the Front Seat and Dressed for the Occasion.

"One type of lady passenger usually wears a flimsy silk pneumonia blouse, very much décolleté at the throat, open work stockings and Louis XV patent leather shoes," says an exchange. "A diaphanous overall is supposed to put the finishing touches to a midwinter motor kit. This sort of lady passenger is generally pretty. The car owner doesn't mind taking off his coat for her use and contending himself with a parapluie. As a rule, the 'utility,' dressed to defy art, Ajax and the elements, girl passenger is not lovely to look at either in or out of her goggles. And nothing in the way of speed, narrow shaves or fire-work driving surprises her.

"The pneumonia bloused girl, on the contrary, is full of admiration notes—she clings confidently to the owner's arm when a tight corner is negotiated; has stage fright when a chicken is seen a full mile ahead, and thinks it 'awfully clever to drive such a huge car.' The owner rather likes the frivolous, airily-fairly clad passenger, even when her veil pins come out and he has to throttle down, come to a full stop, and unravel the floating chiffons from his own and his companion's throat.

"It was nice of you to have your car's colors to match my hat," she murmurs seductively in his ear. "Gracious! I thought you'd never escape running over that dog!"—and the clutch is put in with shivering intensity—the lady's clutch, of course! "Mustn't I hold on to your arm? I'm awfully sorry, but I nearly died of fear over the dog. We should have been killed—now there's some dust in my eye. You told me to wear goggles. I wish I had—oh! do stop and take it out, I mean the dust."

"There wasn't any dust, after all, but the operation of trying to take it out of a pair of pretty blue eyes—she didn't know which it was in—in the middle of a street on a market day, was somewhat embarrassing.

"But when she finishes up the run by saying very prettily, 'Do take me past Majorie's house so that she can see me driving in this lovely car—and I think you are the cleverest man I know to manage such a great, big, fierce monster as though it were a pet lamb,' the owner of the monster feels that life at the steering wheel is not without compensations.

"The 'utility' girl passenger wears such stout clothes, he has no chance to exercise his chivalry in the matter of giving up his fur coat; she gets no dust in her cataract-like goggles; she never puts in the 'clutch', or shudders at homicidal ducks and dogs.

"Nevertheless, the 'pneumonia blouse' is seen more often beside the driving seat of his car than the wearer of the utility garb, who is a garrulous authority on gears, garages and mechanical details generally. The frivolous girl entreats to be allowed to sit

next the driver to help him to 'steer.' The 'utility' girl who would really be able to help, and says so uncomprisingly, usually finds herself in the rear. And she is quite unable to understand why."

How Tarring Preserves the Roads.

"Tarring French roads has as its primary object the preservation of the surface and only incidentally the laying of dust," says Consul-General Robert P. Skinner, of Marseilles.

"It seems to me distinctly unfortunate that in the United States so much stress is laid on the dust problem and so little on primary construction and preservation of roads, although it is obvious that a well-built and carefully preserved road is necessarily dustless. The makeshift whereby the common American dirt road is occasionally dosed with tar and greases of various kinds on the assumption that the French method is being followed, merely defers the proper rebuilding of our highway system.

"It must be remembered that France is already endowed with good roads, whereas in the United States the automobile has come as an instrument to awaken interest in the subject of highway building. To combat the destructive influences of traffic many of the French engineers employ the tarring process which aids powerfully to prevent the disintegration caused by wear and which, unless arrested, makes the dust nuisance acute.

"It has settled down to a positive conviction in France that hot tar applications are valuable in proportion to the excellence of the surfaces upon which they are laid.

"After two years' wear no more dust is observed than would be the case with the ordinary asphalt pavement receiving the traffic of innumerable unpaved streets. The surface is intact, and the sides, where washing generally occurs, looks as fresh and clean after a rain as an asphalt pavement."

Wood Tires for Beach Racing.

That son of merry old England, Clifford Earp, whose performance on Florida's strand when he finished on three tires has won him much fame in the land of his nativity, has recently been interviewed largely on the subject of his exploit by sundry doubting Thomases who question the possibility of the achievement. To one of these he is quoted as having said that hard wood tires of the same section as those ordinarily employed would serve as well as the regulation rubber types for the purpose of beach racing. Also, he is said to have delivered himself of the opinion that the beach course was not so fast nor as hard as macadamized road by "quite five miles, as far as the 90 horsepower machine is concerned." Mr. Earp's wooden tire proposition certainly deserves the palm for novelty, and should he apply it another year, would doubtless serve to draw to him all the publicity his heart could desire, to say the least.

WHAT HE HAS INVENTED

The Inventor Himself Talks of it and Thinks it will Fill the Bill.

The young supervisor had long kept silent. But the overwhelming importance of a certain veteran colleague irritated him and in a lull in the conversation he assumed the offensive and declared somewhat irrelevantly as nothing had been said bring up the subject:

"I've got the greatest thing for automobiles that ever was. I've thought out a brand-new improvement and after deciding just how it ought to be put together I went to work and done it—"

"Did it?" suggested another lawmaker gently, one who in his youth taught a village school and as a consequence enjoys the distinction of being a precisian.

The young supervisor scowled feebly and hurried on: "It's a mechanism that will appeal to all automobilists."

The nub of the story thus carefully delayed, now began to excite interest, and the chairman of the board, who "simply adores automobiles," chirped up a bit and queried: "Which is?"

"An arrangement that causes the machine to play a mellow, refined refrain every time you run over a person," cried the first speaker enthusiastically. "Think of it! You are bowling along, when Bump! Ting-a-ling, goes the automatic music box and the soft prelude of 'Always in the Way,' floats from behind the car to soothe the last moments of your victim. I tell you fellows, it's simply fascinating. If you lose track of the score, then there's fascination of anticipating what tune is coming next. It may be, 'You are Gone, but not Forgotten,' or 'Look up Once More and Smile.' And again, it may be a rollicking jovial piece that would cause the most hardened victim to smile despite himself—perhaps, 'Throw Him Down McCluskey.'"

"Before I put it on the market, I shall perfect it, so that in running down a group of pedestrians, you can get a full orchestra effect. I've tried to work it out on the sympathetic plan so that the age and sex of the person under the wheels could control the selection of the instrumental offering. It almost seems as if the number should be appropriate to the victim's condition in life. A big husky man man might not like the simple air that would appeal to a spinster. Kind of incongruous, you know. But that ideal can only be attained through the intensity of the bump. Of course, a 200-horse pounder will cause more of a shock than a child. By that simple physical law I think it can be made thoroughly sympathetic.

"What if you ever ran over the Board of Supervisors?" grinned a rural wit, whose reputation as a wag consists in asking impossible questions.

"Probably get a discord," replied the young supervisor softly.

ACTS LIKE STEAM ENGINE

Gasolene Motor that Exerts Constant Pressure—Its Novel Means of Operation.

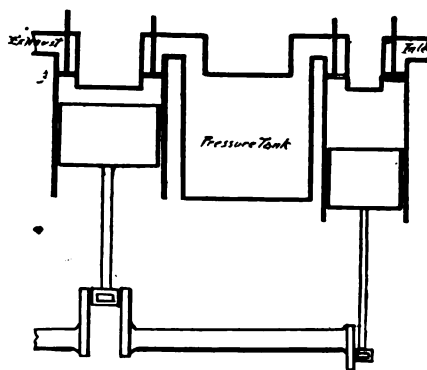
What is without doubt the closest approach to the principle of the steam engine in an internal combustion motor, is represented by what is known as the Brayton system, something that differs radically from the ordinary gas or gasoline engine. In place of the high initial pressure that is the distinguishing characteristic of the internal combustion motor of practically every other type, a constant pressure is maintained in the Brayton motor and is permitted to act upon the piston for a portion of the stroke only, when the supply is cut off, and the charge is permitted to expand in the same manner as steam.

Its chief characteristic and the one in which it differs most radically from existing types is in the use of a pressure reservoir or tank which is maintained by the working of the motor itself. This pressure reservoir may be likened to a steam boiler in some respects in that it supplies the fuel to the cylinder at the pressure obtained by the compression stroke of the four-cycle engine, namely 60 to 80 pounds per square inch. The vaporized fuel is admitted through a valve of the usual type that may be set to open just as the piston is at its highest point on its upward stroke or slightly before, and must pass through a number of baffle plates between which are layers of gauze, located in the valve chamber. This provision is to prevent the explosion from communicating with the pressure reservoir before the closing of the valve, which it might otherwise do, as the ignition is accomplished by means of a light constantly kept burning in a small bypass supplied with gas from the reservoir itself.

The cycle of operations is accordingly as follows. At that portion of the stroke of the pump which would correspond to the suction stroke of a four-cycle engine, the pump draws in the mixture from the carburettor which may be of any standard form. On the up stroke of the pump, the analogy between the latter and the four-cycle motor may be carried further, except that instead of merely compressing the charge in the upper part of the cylinder, a second valve opens and permits it to pass into the pressure reservoir. As the power piston and that of the pump are run from the same crank shaft, the storage of fuel under pressure begins with the starting of the motor. As soon as the power piston reaches the upward limit of its stroke, the valve connecting the combustion chamber with the reservoir opens and admits a charge which immediately begins to burn as soon as it passes the wire gauze in the valve passage due to the gas flame with which it then comes in contact. It is, of course, burning at the same pressure as it

was in the container, or 60 to 80 pounds to the square inch, and naturally begins to expand as soon as combustion sets up. About sufficient fuel to correspond to one-third of the capacity of the cylinder is admitted when the inlet closes and the burning charge expands much after the fashion of steam. On the up stroke the exhaust valve opens, closing again just in advance of the admission of the new charge, so that every stroke is a power stroke.

This chain of operations will be clear upon reference to the accompanying sketch. At the right is the pump into which the fuel is first admitted on the down stroke of the piston. On the up stroke of the latter the next valve to the left of the cylinder head of the pump opens and allows the charge to pass into the reservoir, which for convenience and clearness is illustrated as a cylinder placed between the pump and the motor. As the cranks are placed 180 degrees apart, it will be seen that the power stroke of the motor balances the power or



compression stroke of the pump and both run idle together, which makes for good balance. The position of the valves and the wire gauze already referred to, as shown in the sketch make their functions apparent at a glance.

Tests carried out over an extended time showed this type of motor to be capable of operating on 32 cubic feet of gas per horsepower hour, which for the period at which it was first exploited—more than 30 years since, was considered something out of the ordinary. In practice, however, it was found to develop a defect in that the subjection of the gauze to the heat of the explosion soon caused it to burn away and the first backfire into the reservoir stopped the engine and suspended work until the gauze was replaced. Like many other things in the domain of gas internal combustion engineering, the name Brayton has survived all these years, although it conveys no meaning whatever to many of the present generation. Its chief advantages are low pressure and low temperature and a perfectly noiseless exhaust. Owing to the size required to develop sufficient power under such conditions it would not appear to lend itself to the needs of vehicle propulsion without considerable modification.

ENGINE AS A BRAKE

Tests that Prove its Efficiency—Scavenging Effect also is Obtainable.

As a result of the long controversy that has been waged abroad, anent the use of the engine as a brake, a scientist has undertaken to prove by experiment just what does take place when the power is cut off and its retarding action is utilized to lower the speed of the car. He is W. Watson, who rates no less than five letters after his name, and he has delved into the subject in no half-way manner. His first experiment consisted in measuring the power of the engine when no variations in pressure took place in the cylinder, all of the power being absorbed in overcoming the friction of the moving parts of the engine. In order that the pressure should not vary appreciably in the cylinders, the plugs over the valves were removed and that this accomplished the desired result perfectly was evident from the fact that the manograph recorded no measurable changes in the pressure.

Without compression, it was ascertained that .75 of one horsepower was required at 590 r. p. m. merely to overcome the friction of the moving parts of the engine, the type used, being a two-cylinder, four-cycle motor with mechanically operated valves, governed by the throttle, the lift of the valves being fixed. Having determined this point, the valve plugs were replaced, thus restoring the engine to its normal running condition. With the throttle wide open it was then ascertained that 1.03 horsepower were absorbed in turning the engine over idle. Hence, by making allowance for the amount of power absorbed through the friction of the moving parts alone, it will be apparent that .28 of one horsepower was expended in sucking air into the cylinders, compressing and expanding this air very nearly adiabatically, and then forcing it out through the exhaust.

With the throttle open and the compression cocks half open, 1.39 horsepower were required to drive the engine, while with the throttle closed and the compression cocks half open this amounted to 1.49 horsepower. With both throttle and compression cocks wide open, this amount increased to 1.63 horsepower and by closing the throttle it was further raised to 1.69 horsepower—results that appear utterly anomalous and apparently irreconcilable at first sight. That it should require more power to turn over a motor with the throttle and compression cocks open than closed seems totally at variance with theory, but upon taking into consideration the almost perfect balance of the well designed and constructed motor of the two-cylinder type, it will be clear that once the initial compression is overcome by getting the motor under

way, the expansive effort in one cylinder will practically counteract the compression in the other.

Further experimentation along the same line disclosed the fact that with the throttle open and exhaust valve remaining closed the amount of energy absorbed was slightly less than 1.60. Permitting the exhaust valve to open on the third stroke brought this up to 2.40 horsepower. After deducting the amount required to overcome the friction of the moving parts, it was demonstrated that the operation of the remaining functions of the engine when turned over idle absorbed from .28 of a horsepower with the throttle open to .94 horsepower with the throttle closed and the compression cocks wide open. With both throttle and compression cocks closed the amount was .47, with the latter half open .74; opening the throttle lowered this to .64 and opening both throttle and compression cocks wide raised it to .88 of one horsepower.

By collating the results of these experiments the following data was obtained. Taking the power delivered at the clutch when working, which amounted to 3.7 horsepower, then the braking effect with the throttle closed amounts to 1.22 horsepower; with the throttle closed and the compression cocks open, 1.49 horsepower; when the exhaust valve is prevented from opening 1.69 horsepower, and when the exhaust valve is opened on the third stroke, 2.40 horsepower. Stated with regard to the ratio borne by the braking effort to the total power output of the engine, this ranges from 33 per cent. with the throttle closed to 65 per cent. when the exhaust valve was only permitted to open on the third stroke. With the throttle closed and the compression cocks open this amounted to 40 per cent. and with the exhaust valve remaining closed at all times, 46 per cent., so that it will be apparent that there are a number of combinations open to the skillful driver by which he may increase or diminish the braking power of the engine without resorting to the regular brakes at all, a further advantage being found in the scavenging effect on the cylinders when the compression cocks are open.

It is rather surprising that the maximum braking power of the engine when used in the manner indicated should represent such a substantial proportion of the total power output of the engine as 65 per cent, but taking into account losses between the transmission and the driving wheels, it will be apparent that the percentage of braking effort will be considerably increased, since this loss in transmission decreases the power delivered by the engine and augments the amount of power absorbed when the engine acts as a brake. Thus, if the loss of power between the clutch and the road wheels amounted to 15 per cent., which is a very conservative estimate, the maximum braking effect is increased to 79½ per cent., assuming, of course, that the same gear is employed in both instances.

This demonstrates better than anything

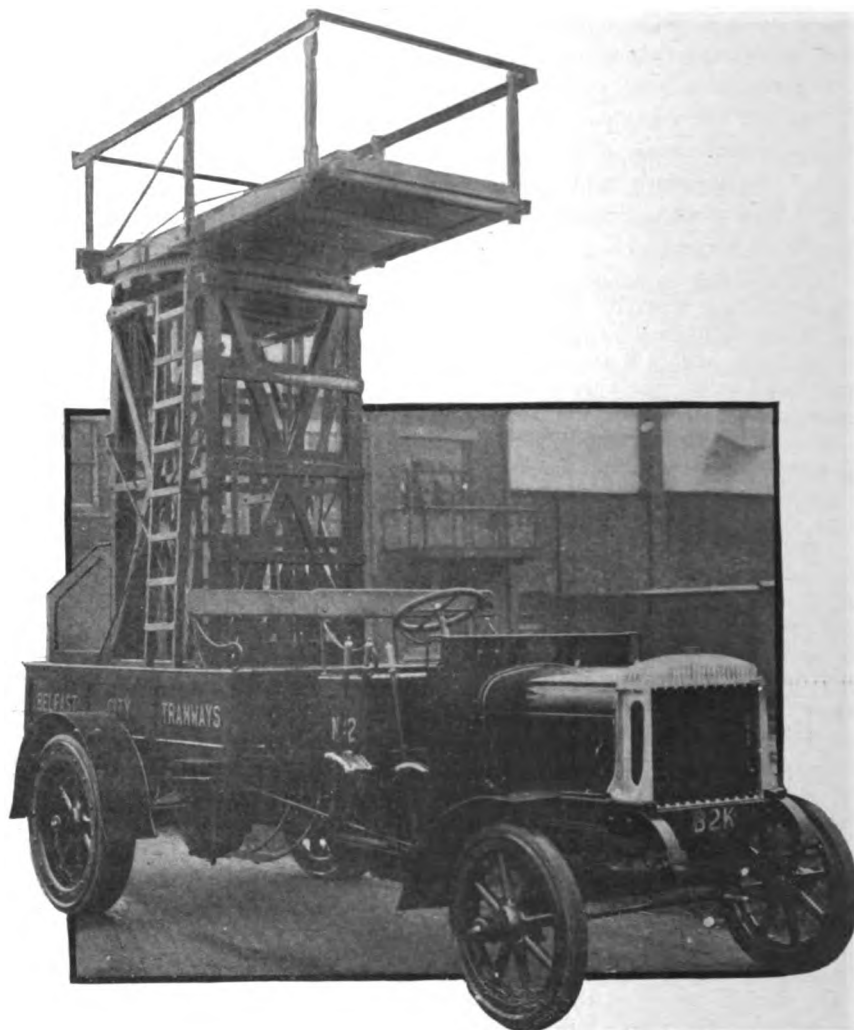
that has previously appeared on the subject that not alone an extremely powerful braking effect is obtainable with the engine, but that it may be graduated almost as effectively as the direct form with the further advantage over the latter that any heat generated will be absorbed by the water circulating system.

Gasolene Wagon for Trolley Repairs.

One of the most trying features of the common system of electric traction employing the overhead trolley wire is the not infrequent tendency of the unprotected conductor to become deranged, and

greater certainty and dispatch of the mechanically propelled vehicle over that drawn by horses, coupled with the facility of handling and the never tiring quality of the machine, have at once given it a strong recommendation to far sighted corporations and its use is considerably increasing at the present time.

The machine here shown, which employs a gasolene motor, has been in service on the Belfast Tramways in Ireland for some little time, and has done good work from the start. Equipped with a full assortment of the necessary tools and with its crew always in readiness, it can be rushed to the scene of a break in about half the time required



the long delays and no little danger to other traffic consequent upon such contingencies. These necessitate the use of tower wagons for the use of the repair gangs, and in cases where horse drawn outfits are used, the stoppages of traffic consequent on the great length of time occupied in getting to the scene of the break necessitate one of the most serious drawbacks to the use of the system. Just here is where the motor car comes into service as a truly utilitarian modernism.

The use of motor driven emergency wagons and portable towers for this work has been considerably extended in Great Britain during the past year or more. The

for its animal-drawn equivalent, and is in constant readiness for a call. A notable feature of this particular machine is the application of the rotary working platform which can be swung out over the track while the machine stands beside it, thereby preventing the obstruction of the right of way while the repairs are being effected.

"The A. B. C. of Electricity" will aid you in understanding many things about motors that may now seem hard of understanding. Price, 50c. The Motor World Publishing Co., 154 Nassau Street, New York City. ***

LAYING ON THE GOLD LEAF

Two Methods of Performing that Decorative Task—The One Most in Vogue.

"The automobile painter who is really an all-round workman, capable of turning a clever hand at any and all branches of the trade, will find it to his interest to acquire the art, if we may designate it by that title, of laying gold leaf," says a writer in the current issue of the *Carriage Monthly*. "While there are various methods of laying the leaf now in vogue, the cushion and tip method has been practically obsolete for a decade or more. The method that finds greatest favor with the workmen who are accounted particularly expert in this line of work, consists in laying the leaf directly from the book.

"The workman takes the book in the left hand. The top leaf is then turned over a little wider than the stripe, the fold of the paper being made smooth and clean, the overlapped paper being held down on one side with the left thumb and on the other side with the right, the fingers of the hands meanwhile supporting the under side of the book as it is carried to the surface.

"The method is by far, the briefest and quickest of all, and the expert gilder, laying leaf in such quarters as the carriage paint shop usually affords, may easily do double the gilding usually accomplished by the methods formerly in use. Of course, there are circumstances sometimes prevailing which make it impossible, or at any rate, inadvisable to lay the leaf directly from the book, as above advised, in which case the following methods are in order:

"Cut the book at the binding. Then pick up the top leaf or cover, lay it on a smooth piece of board, and rub it carefully with a bar of beeswax. Then rub this waxed paper, waxed side down, upon the gold and smooth it out firmly. This brings the gold leaf tenaciously in contact with the waxed surface of the paper, so that it may be handled practically with impunity.

"As many leaves as are desired for the work in hand may be thus treated, after which the leaves may be cut in width to suit the width of the striping. From these strips the gold leaf may very rapidly be applied to the striping, or to any ornamenting, in fact.

"The second method, otherwise called the turpentine method—cut the book at the binding. Then saturate a small sponge with turpentine and moisten the back of the paper as it lies on the cut book. The volatile and penetrating fluid strikes through the paper, causing the leaf to adhere, in which shape it can be handled in any and all sorts of weather conditions.

"However, on account of the quick evaporation of the turpentine, the leaf must be used immediately following the turpentine application. This method was popularized by furniture ornamentors, and, if worked rapidly, affords satisfactory results.

"The third method consists simply in cutting the books of gold leaf into strips wider than the stripes to be gilded; formerly, it was believed by car painters to be the most economical method of all, but the first and second methods here described have the advantage of enabling the gilder to work in rooms where draughts of air and adverse weather conditions would prevent the use of the third method. But, as above stated, at the present time, notwithstanding the considerable larger loss of leaf credited to it, the method of laying the leaf directly from the book is quite generally practiced.

"Formerly, when competition interfered less than now with paint shop business, it was probably esteemed a wise way to save large on gold leaf and small on labor; but to-day much more advanced methods of bookkeeping have reversed this, and the saving of the gold is made to figure secondary to the saving of labor, which, after all, is the more profitable analysis."

How Fox Makes Non-Fibrous Steel.

A new method of producing a tough non-fibrous steel has lately been brought out by Colonel Fox, of the London Salvage Corps, for which a great deal of virtue is claimed as a means of making materials particularly suited to the extremely rigorous needs of motor car metals. It consists in winding about a core which is a single rod of steel, several other rods of varying size, in layers, the mass thus formed afterward being thoroughly heated and welded together under a power hammer, until it has been practically incorporated in one piece. The principle of the thing is by no means new, a similar method having been in use for years in the construction of irons for chain and anchor work, and a somewhat similar process in which discarded telegraph wire is used as a basis, being employed in the manufacture of the axle steels used by the London and Northwest Railway Co. of England. In this case, the wire after having been sweated to remove all traces of the galvanizing metal, is rolled into balls and raised to a welding heat, after which it is permanently welded together under a powerful squeezer. The metals resulting from any of the processes of this general nature are remarkably tough and refractory, and have the further advantage of being without grain or continuous fibre and hence particularly fitted for use in parts which are to be subjected to strains in different directions and of varying magnitude.

Protection of the Ignitors.

In one of the foreign cars this year the practice of locating the ignitors of the make and break system in separate chambers, has been adopted. The ignition chambers are entirely independent of the cylinders and are bolted in place, being separated from the combustion chambers by perforated screens which tend to protect the firing points from the action of the lubricant, thereby insuring them against corrosion.

HOW THE POWER INCREASED

Explanation of a Seeming Phenomenon—"Eight Horse" Gained in Two Years.

That wines improve with age is too well known to need demonstration, but the fact that a gasoline motor, if handled with due care and properly treated, will not simply improve in a general way, but will come to give an increased amount of power in its old age, is something that requires proof, at least according to the ideas of the lay mind.

Nevertheless this is apparently true, as was shown only last week at the factory of the Electric Vehicle Company, at Hartford, Conn., when a two-year-old motor was put upon the block and tried out in a standard test. Much to the surprise of its builders, it was found to develop full eight horsepower more than its original rating.

The primary test, according to the records which have been preserved along with those of all motors turned out at the factory, gave a rating of 32 horsepower under standard conditions, and this, though liberal according to the custom of the company, was not supposed to be by any means exaggerated. When on being retested, then, the power was found to be slightly over forty, the natural inference was that something was wrong with the test. On being re-run, however, it was seen that the value was correct, and the makers soon satisfied themselves that it was actually true that the power of that particular motor had not simply continued to increase during the first few months of its use, as is common with all motors, but had continued to do so afterward.

Strange as it may seem, it is perfectly possible for the power of a well-kept motor to increase to a considerable extent with long continued use, for a two-fold reason. First of all, the moving parts gradually become better and better assimilated to one another as time goes on, glazing over the bearing surfaces and automatically reducing any little errors of alignment which may have existed at first, thereby reducing the engine friction by an appreciable amount. Second, the constant wear on the cylinders tending to enlarge the bores by an infinitesimal amount, must increase the effective area of the pistons correspondingly, the increase in diameter being accompanied by a corresponding increase in the diameter of the piston rings due to their spring, which prevents a consequent leakage of the gases. Thus, since the area increases with the square of the bore, the total mean effective pressure of the cycle may be very materially augmented by an increase in diameter which in itself, is almost inappreciable. And this fact, coupled with the possibility of a rather conservative primary rating, may be taken to account for the seemingly impossible phenomenon.

HERE'S WHERE THE DIFFERENCE LIES:

An ELMORE Two-Cycle engine consists of one or more cylinders, whose pistons—every one of them—have power behind them at EVERY stroke. The Four-Cycle engine has only every other stroke a powerful one. More than that, the ELMORE cylinders have no outer valves or any other small parts for you to worry over.

They Start From The Seat.

That's the whole story. From eighteen to twenty LESS PARTS for every cylinder. Just the essentials, but much greater power than the four-cycle cylinder can produce. You can understand now why the ELMORE TWO-CYCLE is attracting so much attention.

Take it in comparison with a four-cycle engine, and see what a tremendous saving is made in the up-keep expense by the elimination of so many parts. And the four cylinder ELMORE engine has four powerful impulses at every revolution of the shaft. That, you understand, amounts to a steady application of power.

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Model 15, Four Cylinder, Two-Cycle Elmore, Price \$2,500

Model 14, Three Cylinder, Two-Cycle Elmore, Price \$1,500

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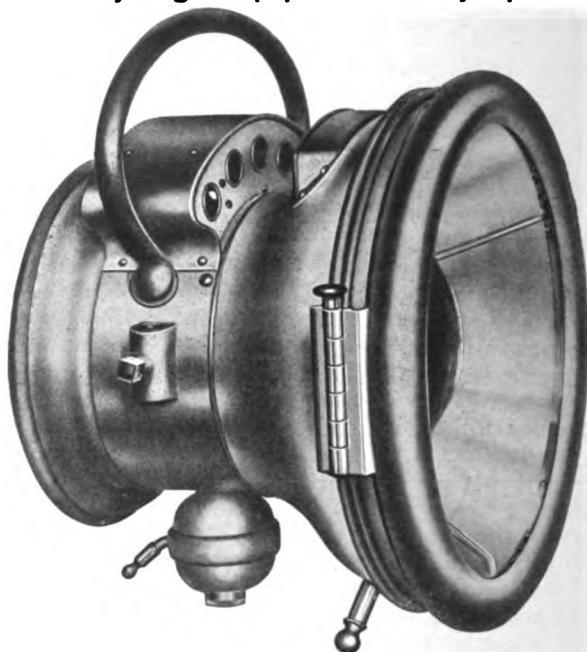
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THE POST & LESTER CO., - Hartford, Conn.

THE MAN IN THE CAB

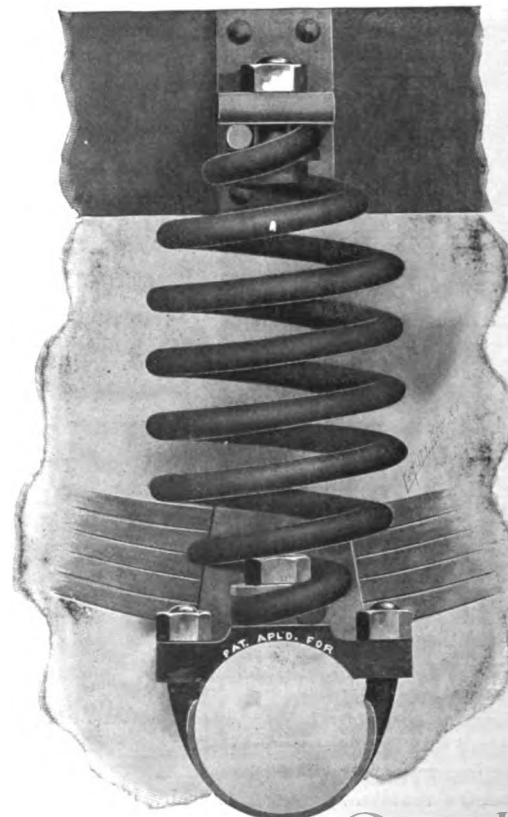
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gives to every detail of its wonderful system for the easy and safe transportation of the thousands who annually travel from East to West, and vice versa, over their famous trunk line

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Do not stiffen spring action over smooth roads.

Come into play only when overload is applied or instant recoil occurs

Like riding on air, at any speed over all kinds of roads.

Never requires adjusting.

Saves machinery, tires and temper

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The Week's Patents.

813,382. Vehicle-Wheel Rim. Isaac Hodgson, Minneapolis, Minn., assignor to The Automobile Wheel and Rim Company of New Jersey. Filed June 6, 1905. Serial No. 263,982.

Claim.—1. An elastic rim combining a plurality of channeled plates flexibly united by cables, the pad springs engaging said channeled plates and the base-plates, the latter being secured to the band, substantially and for the purposes set forth.

813,025. Ice-Velocipede. Henry Schnecko, Holstein, Iowa. Filed Oct. 17, 1904. Serial No. 228,696.

Claim.—1. The combination of a vehicle-frame, two shafts mounted in the vehicle-frame, means for jointly rocking said shafts, arms on the shafts, a lazy-tongs lever pivoted at one end of the machine-frame, means for connecting said arms with the lazy-tongs lever to extend and to fold the lazy-tongs lever when the shafts are rocked.

813,796. Carbureter. George H. Holgate, Philadelphia, Pa. Filed Oct. 16, 1905. Serial No. 282,975.

Claim.—1. A carbureter consisting of a font or receptacle, absorbent material contained within said receptacle, said absorbent material so arranged as to leave a space above and below the same within the receptacle, a stationary tube extending downward through the center of the receptacle open at its upper end and closed at its lower end, a central gas-tube arranged within the first-named tube, said gas-tube also closed at its lower end and open at its upper end, means for causing the central gas-tube to remain stationary, a middle tube arranged between the two aforesaid tubes and adapted to revolve around between the same, ports formed through the walls of the two stationary tubes coincident with one another within the space below the absorbent material, openings formed through the walls of the revolving tube adapted to be brought in and out of register with the ports of the stationary tube, openings formed through the top of the font, a valve connected to the revolving tube for opening and closing these ports when the tube is revolved, ports for admitting air through the lower end of the gas-tube, means for opening and closing these ports by the revolution of the revolving tube, the bottom of the font provided with an opening for admitting air to the central gas-tube, means for closing said opening when the font is to be filled with a liquid, a chimney surrounding the upper end of the gas-tube, a burner arranged over the upper end of the tube within the chimney, as and for the purpose specified.

813,905. Automobile Wheel Bearing. Charles S. Lockwood, Newark, N. J., assignor to the Hyatt Roller Bearing Company, Harrison, N. J., a corporation of New Jersey. Filed May 6, 1906. Renewed Aug. 1, 1905. Serial No. 272,195.

Claim.—1. A wheel-hub having the shell with cylindrical bore, and a keyway and screw threaded space at each end of the bore, and flanges for supporting the spokes, the journals having a double cone tapered toward opposite ends, the tapered sleeves fitted adjustably to the bore and having feathers fitted movably to the keyways, the screw-collars fitted to the threaded spaces for adjusting the sleeves, and rolls fitted between such double cone and sleeves and tapered in the same ratio as the cone and sleeve.

813,926. Gas Engine Sparker. Andrew P. Tallmadge, Washington, D. C. Filed Mar. 18, 1905. Serial No. 250,829.

Claim.—1. As an article of manufacture, the spark-advancer comprising a block adapted to be mounted and rock on a journal and having a longitudinal slideway, a box through which the sparker-actuating rod is adapted to reciprocate, said box confined in said slideway, and means for adjusting said box longitudinally of said slideway and holding the same in the desired adjustment, substantially as described.

813,934. Protective Cover for Pneumatic Tires. Josef Albers, Aix-la-Chapelle, Germany. Filed Apr. 7, 1905. Serial No. 254,415.

Claim.—Improved protective cover for pneumatic tires of cycles of all kinds, composed of one single, continuous piece of leather adapted to inclose the entire outer surface of the pneumatic tire, including the reinforcements in the wheel-rim and vulcanized with the said tire and secured in the wheel-rim, reinforced internally by a lining of crescent shape in cross-section, secured to the outer cover by double-pointed internally-clenched rivets, presenting outwardly heavy heads on the thread surface.

813,959. Starting Device for Explosion Engines. Victor Erdmenger, Essen-on-the-Ruhr, Germany, assignor to Fried. Krupp, Atkiengesellschaft, Essen-on-the-Ruhr, Germany. Filed Apr. 12, 1905. Serial No. 255,210.

Claim.—1. In a compressed-air starting device for double-acting four-cycle explosion engines, means constructed to open communication for the compressed air first to one end of the cylinder and then to the other end of the cylinder and then to close

WANTS AND FOR SALE.

15 cents per line of seven words, cash with order.

In capitals. 25 cents per line.

A TEN PASSENGER wagonette; sample car, 1905-1906 model steam; price and description on application. THOMPSON AUTO CO., Olneyville Sq., Providence, R. I.

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VULCANIZING—One-third saved; we do re-treading and repairing; make large vulcanizing outfits. Extra value in single tube tires, 28x2 1-2, \$10; 28x3, \$12; 30x3, 13; 34x2 1-2 \$10; seconds, \$2 less each; clincher tires, 25 per cent off list. CHAS. E. MILLER, Anderson, Ind.

TELL us what you want; our bargains: Olds Northern, Knox runabouts, two and four cylinder Locomobiles, four cylinder Thomas and Ford; one cylinder Pope-Hartford. SALES GARAGE, 34 Temple St., New Haven, Conn.

FOR SALE—A 1905 Model "E" Locomobile, with extras cost, \$3,100. Car overhauled in November, in first class condition. Best offer over \$1,800 takes it. Address Box 582, Waterbury, Conn.

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FRANKLIN, 1904 Runabout, 12 H.P., 4-Cylinders, extras; Dietz 7-in. lights and generator; Samson rear tires, storage battery, glass front, canopy top. In very good condition, newly overhauled, new wiring and clutch. Tonneau can be attached, \$800. PETER SMITH, P. O. Box 256, Newark, N. J.

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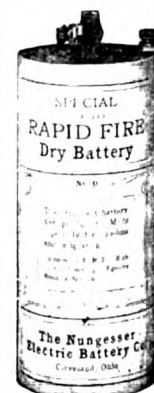
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communication with both ends of the cylinder during the succeeding reciprocation of the piston, and means for connecting the first named to the driving member of the engine to be started, whereby, when the air is admitted to one end of the cylinder, the subsequent movements follow automatically.

813,989. Antifriction Bearing. Vietts L. Rice, New York, N. Y. Filed Nov. 3, 1904. Serial No. 231,223.

Claim.—1. An antifriction-bearing comprising an annular set of bearing-rollers, two concentric bearing parts contacting with the bearing-rollers, said bearing parts having unoccupied annular recesses at their ends, whereby the length of the operative surfaces of said bearing parts is less than the length of the operative surfaces of the bearing-rollers, and limiting means at the ends of the bearing parts, between which the bearing-rollers may move back and forth across said recesses.

814,060. Variable Speed-Gear. Charles F. G. Low, Charlton, England. Filed Aug. 29, 1903. Serial No. 171,241.

Claim.—In a variable-speed gear, the combination of a disk formed integral with one end of a barrel revolubly mounted upon a spindle carried by a movable bracket, said disk having a belt-face; the barrel; the spindle; a second disk in rigid connection with the opposite end of said barrel and having a belt-face; a third disk having two belt-faces and held to slide upon the said revolving barrel between the two said fixed end disks, the three disks forming two belt-paths, around one of which passes the belt to the driven wheel; with a movable bracket carrying the spindle on which is mounted the said revoluble barrel, whereby the position of the axis of the pulley is altered in relation to the position of the motor; and the means for altering the position of the position of the movable bracket; and the means for retaining same in any position within the limits of its movement, substantially as specified.

814,046. Storage Battery. Francois Mouterde, Lyon, France. Filed July 24, 1905. Serial No. 270,946.

Claim.—1. A storage battery comprising a lead vessel having columns integral with its bottom and provided with flanges, a plurality of open-ended electrodes disposed in the vessel, and a spider supporting said electrodes and terminating in a central pole, and said electrodes and said vessel being provided with Y-shaped projections adapted to receive lead fibers deposited therein.

814,068. Pneumatic Tire. Frederick G. McKim, London, England. Filed, Mar. 14, 1905. Serial No. 250,047.

Claim.—1. In a tire of the kind described, the combination with a series of air-chambers, of distance-pieces located between the same, a covering for said air-chambers and said distance-pieces and thread portions on said air-chambers constructed to project through said covering, substantially as described.

814,071. Speed Indicating Apparatus. Louis Nissim, South-on-Sea, England. Filed Nov. 7, 1904. Serial No. 231,755.

Claim.—1. In speed-indicating apparatus, the combination of a cylinder having a narrow slit in its wall, a piston adapted to work in said cylinder and to expose more or less of said slit according to the position of the piston in the cylinder, a piston-rod and means for guiding the same, a device including a spring and means for adjusting the tension of the same external to the cylinder aforesaid, means operatively con-

necting said spring device to the piston-rod of said cylinder, an indicating device, means connected to the piston-rod beyond the end of the cylinder for operating said device, an air-compressing apparatus in connection with the cylinder, and means for operating the air-compressing apparatus from a moving part of the vehicle whose speed is to be measured.

814,087. Vehicle Wheel. Frank A. Seiberling, Akron, Ohio. Filed Mar. 2, 1905. Serial No. 248,126.

Claim.—1. A vehicle-wheel comprising the combination with a rim and a tire mounted thereon, said rim having an offset along one side, a spring-tire-holding element mounted in said offset and capable of lateral movement therein, and means to lock said tire-holding element against circumferential motion when in one position in said offset, said tire-holding element being free from engagement with said locking means when in a different position in said offset.

814,088. Vehicle Wheel. Frank A. Seiberling, Akron, Ohio. Filed July 29, 1905. Serial No. 271,837.

Claim.—1. A vehicle-wheel comprising a rim having a seat for a tire and an offset along one of its edges forming a seat, a split ring mounted in said seat and having the severed ends thereof overlapping so as to prevent the said ends from displacement when pressure is applied to the ring, and means carried by the ring and adapted to interlock with the said offset thereby preventing the ring from circumferential motion.

814,093. Driving Clutch for Power Transmission. John K. Stewart, Chicago, Ill. Filed Apr. 10, 1905. Serial No. 254,751.

Claim.—1. In combination with a shaft-hanger having a shaft journaled therein; a pinion loose on the shaft and stopped independently of the latter against endwise movement in either direction; a clutch member on the pinion and a companion clutch member fast on the shaft, said clutch members having corresponding sloping shoulders for engagement with each other, the shaft being longitudinally movable in its bearings; a lever mounted on the bearing and connected with the shaft for receiving and transmitting such longitudinal movement, and means on the bearing for holding the lever at the position to which it is moved by the longitudinal movement of the shaft.

814,132. Clutch Mechanism. Henry S. Hele-Shaw, Liverpool, England. Filed Dec. 16, 1903. Serial No. 185,444.

Claim.—1. A friction-clutch comprising thin annular plates, each having a single offset portion extending circumferentially at the central part and of identical formation with the single offset of the adjacent plate, said plates having peripheral fin portions and means for holding the said plates in fractional relation, the said fin portions reaching from the extreme edge of the plate to the point where the wall of the single offset begins to project laterally from the general plane of the plate, said fin portions and single offset portions occupying the whole extent of the plate, substantially as described.

814,133. Starting, Stopping, Speed-Controlling and Reversing Gear. Henry S. Hele-Shaw, Liverpool, England. Filed Dec. 16, 1903. Renewed Jan 9, 1906. Serial No. 295,321.

Claim.—1. In a reversing-gear, the combination of two shafts in axial alinement, a

direct clutch between the two shafts at adjacent ends thereof, an externally-toothed wheel fixed to the one shaft, an internally-toothed wheel fixed to the other shaft, planetary pinions gearing with the said wheels and a second clutch in one part of which carries the said planetary pinions and the other part of which is fixed.

814,143. Tire-Shoe. Edward Krebs, Albany, N. Y. Filed Sept. 12, 1905. Serial No. 278,077.

Claim.—1. A protecting-shoe for inflatable tires consisting of alternating layers of non-puncturable and elastic material wound upon each other forming a ring, said ring being arranged to encircle the tire, the wound strips being fastened together substantially as described.

814,161. Elastic Metallic Tire. Albert Peust, Hanover, Germany. Filed Feb. 20, 1905. Serial No. 246,488.

Claim.—In a metal tire for vehicles for ordinary roads, the combination of an under layer, steel wires attached obliquely to said under layer and resilient peripheral walls laterally of said under layer and extending outwardly beyond the same to a distance intermediate between the under layer and the outer ends of the wires for the purpose set forth.

814,164. Resilient Vehicle Tire. John F. Rau, Chicago, Ill., assignor of one-half to John F. Cordes, Chicago, Ill. Filed Sept. 19, 1904. Serial No. 224,993.

Claim.—1. A vehicle-tire comprising an outer casing, a core integrally united therein comprising a central tube and a plurality of tubes extending around the same, each of said tubes being composed of a plurality of flexible layers.

814,175. Sectional Tire. Fred G. Urfer, Portland, Oregon. Filed Aug. 22, 1905. Serial No. 275,301.

Claim.—1. In combination, a tire formed of a plurality of sections having scarfed ends arranged to overlap on lines parallel with the peripheral line of the wheel-felly, means for securing each section independently to the wheel, and means for connecting the scarfed portions of the sections to each other.



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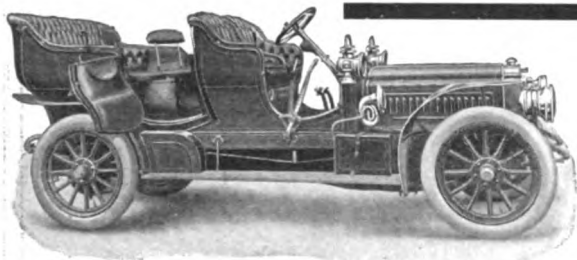
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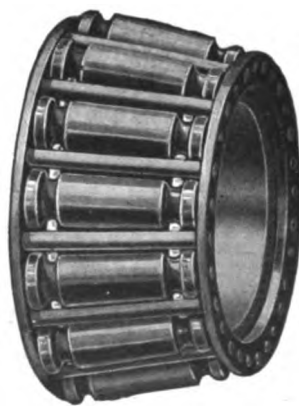
Members Association of Licensed Automobile Manufacturers.

NO MATTER HOW GOOD

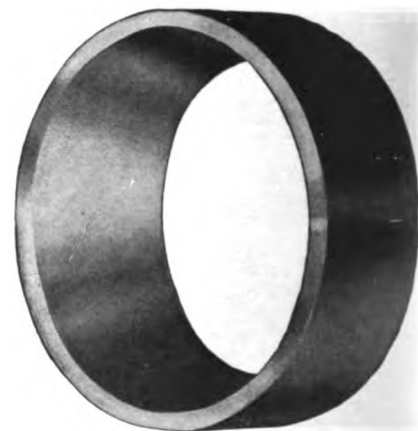
the car may be, it can be made better by the use of



Cone.



Cone and Rollers.



Cup.

TIMKEN ROLLER BEARINGS

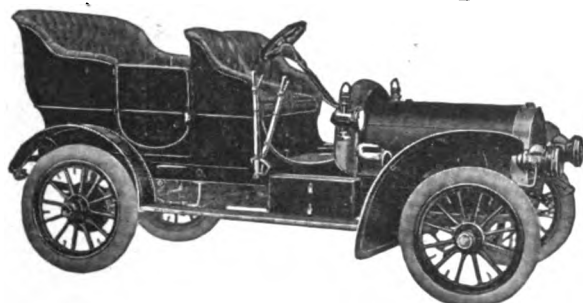
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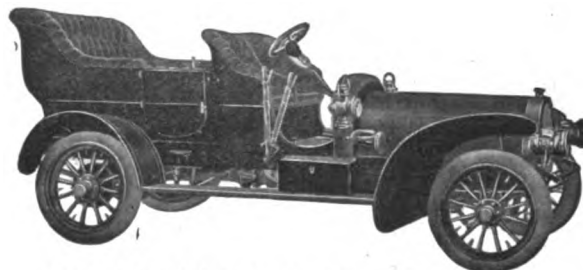


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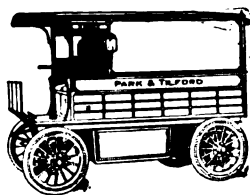
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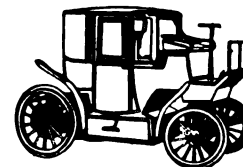
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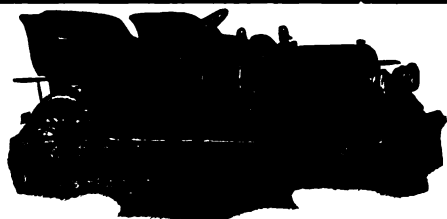
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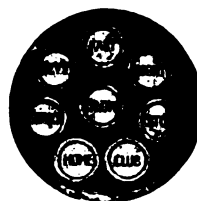
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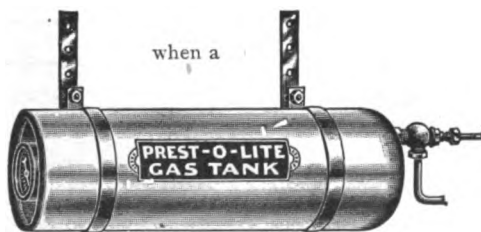
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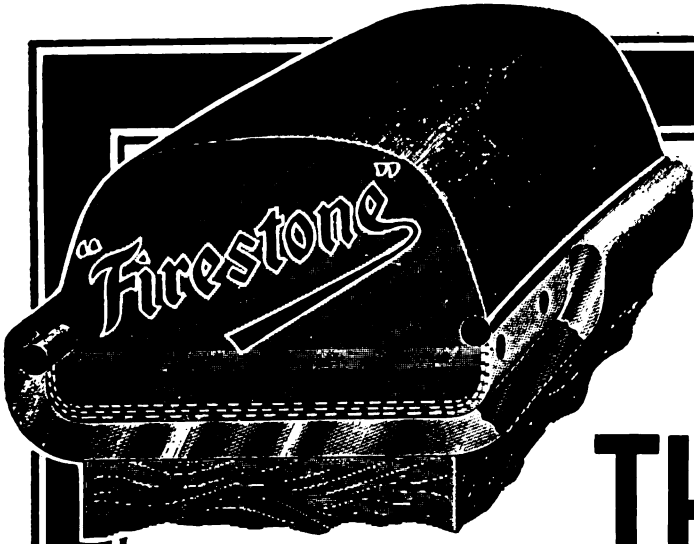
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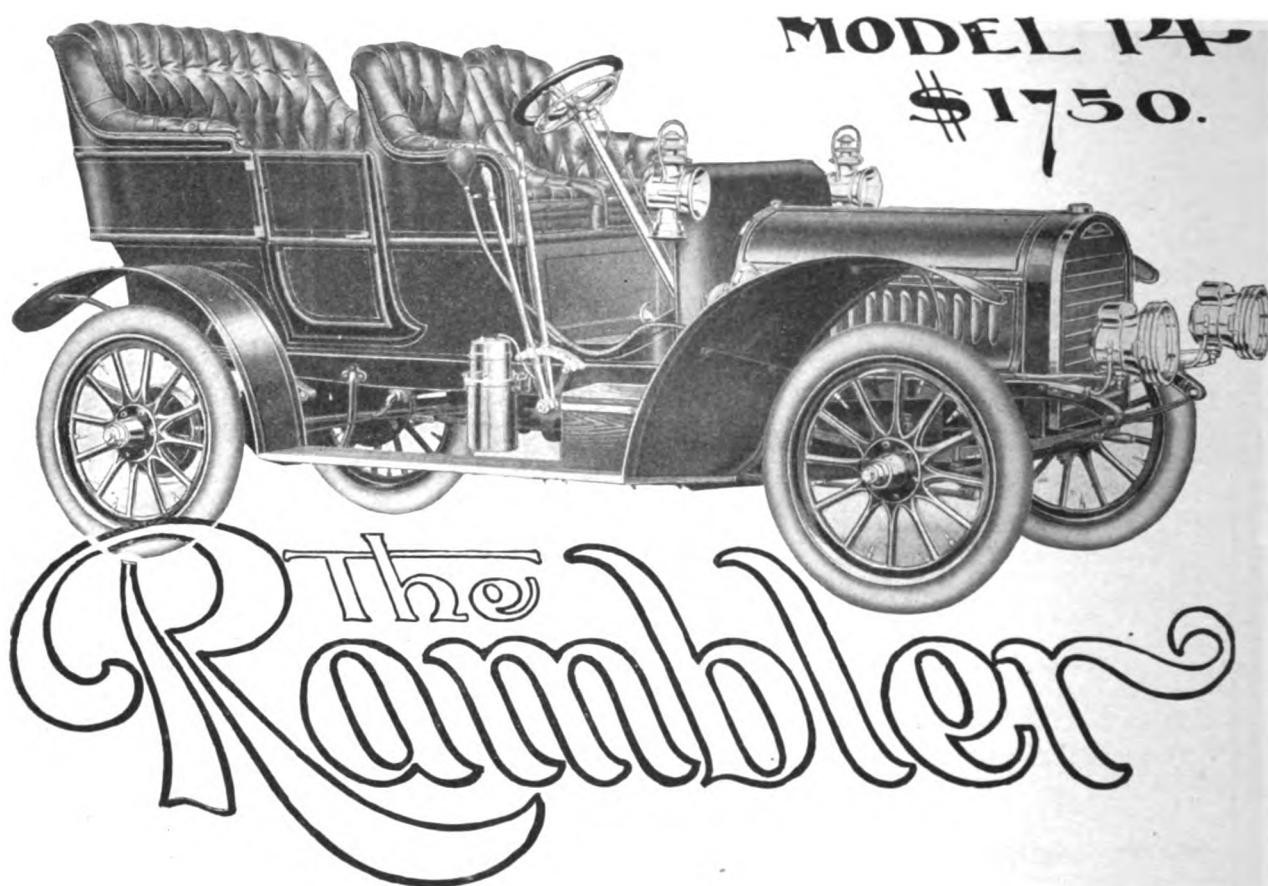
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THE MOTOR WORLD.

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE
AND KINDRED INTERESTS

Volume XII.

New York, U. S. A., Thursday, March 22, 1906.

No. 8.

FRICITION IN BALL BEARINGS

**Hess-Bright Made Defendants in First Case
—Other Suits in Sight.**

Although its title does not suggest ownership of ball bearings, the Standard Roller Bearing Co., Philadelphia, as is quite generally known, is strong on ball bearings also, it having just developed that they claim to hold broad patents covering the annular type most prominently represented by the Hess-Bright bearing. The chief of these patents are No. 417,340 and No. 434,472.

Secure in their possession, the Standard Roller Bearing Company has begun its campaign against all those whom they claim are infringing their patent rights. The Hess-Bright Mfg. Co. is the chief of these alleged offenders, and the first gun of the war was directed against them. Suits against them for alleged infringement of the patents in question were filed on the 13th inst. It is also common property that suits are in preparation against a number of motor car manufacturers who are making use of the Hess-Bright bearings in their vehicles.

New Man in Knox Trucks.

After April 1 the Knox Motor Truck Co., of Springfield, Mass., is to have for its treasurer and general manager Walter G. Morse, president of the Second National Bank of Springfield, now in liquidation. He succeeds to the treasurership of the company through the resignation of Clarence J. Wetzels, who will withdraw from actual business associations with the concern. The change will be attended by an increase in the paid-up capital of the company from \$150,000 to \$250,000, and the taking up of most of the increase will be provided for by Mr. Morse, it is stated.

First Jolt in Shock Absorber Suits.

The first of the Hartford Suspension Company's suits for alleged infringement of the Truffault-Hartford shock absorber patents took the rather daring form of application for an injunction to restrain the

firm of Hollander & Tangeman, New York, from selling the Diezmann shock absorber on the cars handled by that firm. The first step in the case has just been decided against the Hartford people, which, however, is a matter of small surprise as rarely, if ever, do the courts grant injunctions on unadjudicated patents.

Infringement of trade mark and unfair competition were also among the allegations made, but these suggestions were not pressed. In the words of the court, there was "left only an application for an injunction on an unadjudicated patent of recent issue, over which there is a substantial conflict as to the prior art." The court therefore denied the Hartford motion, ruling that "these questions shall be left for final hearing," which means, of course, that the case has been carried to a higher court.

Lozier Gets Selden License.

The Lozier Motor Co. is now a member of the Association of Licensed Automobile Manufacturers and is, preforce, now in possession of the Selden license. It was taken into the fold last week, after, of course, having paid the "initiation fee" of \$2,500 and made a settlement for back royalties. The accession of Lozier brings up the A. L. A. M. membership to thirty-eight.

Studebakers Buy into Garford.

Studebaker interests have invested some \$200,000 in the Garford Mfg. Co., Elyria, Ohio, which will permit of a considerable enlargement of the business. The accession of capital will cause no change in the name or location of the Garford Co., which, among others, has all along supplied the chassis and parts of the Studebaker gasoline car.

Bankruptcy Tack in Milwaukee Tires.

The Milwaukee Rubber Co., whose factory is in Cudahy, Wis., were petitioned into bankruptcy yesterday afternoon, from creditors joining in the petition. The chief of them is William Becker, who claims that the company is indebted to him in the sum of \$100,000. The company make the Fawkes "airless" tire.

SPARK PLUG PATENTS BOB UP

**Acquired by Selden Interests and Claimed
to Cover Basic Ideas—What they are.**

Spark plugs are about due to enter the realms of royalty and license. The fact is indicated by the announcement officially made this week that the Association Patents Company, which is the patents holding offshoot of the Association of Licensed Automobile Manufacturers, has acquired the "entire rights, title and interest" in what are believed to be the basic patents on at least the annular type of spark plug which is now coming into quite general use.

The patents involved are No. 582,540, issued May 11, 1897, to Oscar Mueller, of Decatur, Ill., and No. 612,701, granted October 18, 1898, to F. W. Canfield, of Manistee, Mich. Both of these patents had become the possession of Edward D. Wheeler, from whom the A. L. A. M. representatives acquired them "after," so reads the official announcement, "investigation of the legal validity and practical tests of the efficiency" of the plugs in question.

"Royalty will now be paid under these patents by spark plug makers," artfully continues the official announcement of their purchase, "and members of the A. L. A. M. will have a peculiarly new interest in knowing that the plugs they use have been duly licensed."

The device covered by the Mueller patent is clothed in the following language:

No. 582,840. O. Mueller, May 11, 1897.
Specification:

"The igniter may be detached from the cylinder head without detaching the head from the cylinder, and the cylinder head may be detached from the cylinder without affecting the igniter.

"It is not impossible that each pole piece should be set in a separate disk or the equivalent thereof and the disks be each secured in the head in the manner described, and while this modification would not be so desirable as the form described, it is included in the broad idea of the invention.

"What I claim as new and desire to secure by letters patent is:

"An igniter for explosive engines comprising a cylinder head having an opening with a seat formed therein and a threaded rim encircling and extending outward from the seat, a non-conductor disk bearing against the seat and closing the opening, an annular nut screwed into the rim and against the disk, and a circuit wire connected with a pole piece that extends through the disk, substantially as set forth."

The Canfield plug is described in the patent as follows:

Specification:

"The object of my invention is to produce a method of insulating the electrodes of gas, oil or vapor engines that will not foul injuriously, but be at all times perfect and in good reliable working order, thus causing the electric current from the generator to jump across the space between the points of the electrodes, and thereby causing a spark to ignite the charge of gas or vapor in the cylinder or firing chamber of a gas, oil or vapor engine."

"My improvement consists of a counterbore or recess around the electrode at a point where it enters the cylinder of a gas, oil or vapor engine of such size and depth as will prevent the explosive mixture from cylinder or firing chamber circulating into said cavity far enough to deposit the products of its combustion onto the insulator at the deepest part of the counterbore or recess."

Claims:

"1. In a gas, oil or vapor engine igniter or spark, a recess or counterbore around the electrode or electrodes and above its or their sparking points when said electrodes are used vertically, for the purpose of preventing an injurious accumulation of the products of combustion or other four matter on the insulation of said electrodes, substantially as and for the purpose set forth."

"2. In a gas, oil or vapor engine igniter or spark, a recess or counterbore of such size and depth as to prevent the explosive mixture used in the cylinder from circulating into said counterbore or recess far enough to come in contact with its deepest part around the electrode or electrodes at or near the point where said electrode or electrodes leave the insulator to enter the cylinder or firing chamber, for the purpose of preventing an injurious accumulation of the products of combustion or other foul matter on the insulation of said electrodes, substantially as and for the purpose set forth."

Because he did not receive commission on a vehicle sold in his locality, H. E. Frederickson, a dealer of Omaha, Neb., has obtained an injunction restraining the Powell-Bacon Co., of the same city, from receiving cars from the Cadillac Motor Car Co. The injunction is only temporary, however. The agency was taken away from Frederickson and given to the other company, so that is why the former feels piqued.

The Week's Incorporations.

Buffalo, N. Y.—Independent Machinery Oil Co., under New York laws, with \$10,000 capital. Corporators—O. F. Ryan, J. J. Walsh and J. J. Sullivan, all of Buffalo.

Chicago, Ill.—Monarch Motor Car Co., under Illinois laws, with \$150,000 capital; to make automobiles. Corporators—T. A. Quinlan, Jr., A. C. McCord and Joseph J. Boucher.

New York City, N. Y.—Goodyear Rubber Tire Co., under New York laws, with \$1,000 capital. Corporators—K. B. Harwood, L. L. Lewis and P. W. Williamson, all of New York.

Toledo, Ohio.—Toledo Auto Touring Car Co., under Ohio laws, with \$15,000 capital. Corporators—Frank J. Van Loo, James Sheehan, U. G. Denman, Carl A. Hudson and Louis E. Kriger.

New York City, N. Y.—Louis Burghardt-Mills Co., under New York laws, with \$25,000 capital; to deal in automobiles. Corporators—Louis Burghardt, S. B. Mills, Jr., and F. J. Griffin, all of New York.

Millbrook, N. Y.—Lumex Anti-Vibrating System, under New York laws, with \$200,000 capital; to manufacture motors and machinery. Corporators—Henry Harris, J. J. Barber and S. F. Fromm, all of New York.

Newark, N. Y.—Mora Motor Co., under New York laws, with \$150,000 capital; to manufacture automobiles. Corporators—S. H. Mora, W. H. Freeman, of Rochester; W. H. Birdsall, Newark, and G. S. Whitney, Akron, Ohio.

Providence, R. I.—Rhode Island Machine Co., under Rhode Island laws, with \$20,000 capital; to make automobiles, engines, gears, parts, etc. Corporators—Walter M. Jordan, Edwin G. Pinkam and Clayton Harris, of Providence.

Memphis, Tenn.—Argus Import Motor Co., of New York, under Tennessee laws, with \$500 capital; to deal in automobiles. Corporators—E. S. Waechter, of Hamburg, Germany; W. P. Homan and E. M. James, of New York City.

Camden, N. J.—Camden and Atlantic Automobile Co., under New Jersey laws, with \$25,000 capital; to operate motor stage line between Camden and Atlantic City. Corporators—L. Dare Gindhart, Charles S. Wesley and Leon Berry.

Toledo, Ohio.—Cooney Carriage Co., under Ohio laws, with \$10,000 capital; to make automobiles. Corporators—John McGettigan, James J. Cooney, Charles R. Bowman, Josephine S. Lindsay, John V. Todd and Fred E. Bullard.

In the Retail World.

The Corning Automobile Co. have "opened up" in Elmira, N. Y. They are located in the new garage on Tioga avenue.

Samuel Graybill is erecting a garage on South Market street, Elizabethtown, Pa. A general garage business will be conducted.

Jason Zimmer will open a garage at 127 North Third street, La Crosse, Wis., before the season begins. The building will be remodeled to suit his needs.

Allen, Austin & Endrus have formed a co-partnership to do business at Greenwich, N. Y. A garage will be erected on Greenwich avenue, opposite the postoffice.

Work has commenced upon the two-story brick garage to be erected by the Peoria (Ill.) Automobile Co., in the 700 block on Main street. It will cost \$15,000.

George H. Berg has taken the eastern New England agency for Berkshire cars, for which the Douglass Andrews Co., of New York City, are the selling agents. He has established himself in the Motor Mart, in Boston.

Fred Read Corporation is the title of a new company at Newtonville, Mass., with a branch at 41½ Columbus avenue, Boston, which has been formed to deal in second-hand cars and sundries; a garage will also be maintained in Newtonville.

Henry D. Stebbs, for thirteen years foreman of the mechanical department, New Orleans and Texas Railway Co., has begun business at 725 Cherry street, Chattanooga, Tenn., as the H. D. Stebbs Automobile Co. The new company will sell Reo and Rambler cars and do a general garage business.

The Mitchell Commercial Vehicle Company have removed from the Auto Arcade, Forty-ninth street and Broadway, to 121 West Thirty-first street, New York City. This company recently made arrangements to handle the well known line of Mitchell pleasure cars in addition to the Mitchell trucks and delivery wagons, and the removal brings the Mitchell interests in New York under one roof.

Monarch Dead, New Monarch Arises.

Now that the Monarch Automobile Co., which did business at Aurora, Ill., has been declared bankrupt, a new company has arisen from the ruins. Papers were taken out last week for the Monarch Motor Car Co., of Chicago, Ill., with \$150,000 capital. The corporators mentioned in the papers are T. A. Quinlan, Jr., a Chicago capitalist, and A. B. McCord and J. J. Boucher, who were both prominently identified with the old company. It is said that the new company will make a runabout similar to the one turned out by the bankrupt Aurora concern. The Monarch Motor Car Co. purchased the assets, which included the patents, machinery and stock of the Monarch Automobile Co.

Why Manager McMullen Resigned.

Roger B. McMullen has resigned his office as general manager of the American Motor Car Manufacturers Association to join the staff of the A. O. Smith Co., the Milwaukee parts makers. He leaves the organization with the good will of all, his change being induced solely by increased income.

RECOGNIZE RENAULT'S RIGHTS

Foreign Makers Adopt Seldenistic Policy and will Pay Royalty on Direct Drive.

It would seem that a partial settlement of the dispute over the right of the Renault firm in France to exact royalties from other makers using the direct drive had been reached, resulting in at least a dozen makers agreeing to pay one per cent. per car on the catalogue price of the chassis under a special arrangement with Renault Freres. In order to protect their licensees from the dealers in foreign cars, the Renaults agree to claim a double royalty on all machines brought into the country and using the system covered by their patent. While the names of the firms signing the agreement have not been made public, it is definitely known that the following well known houses have stayed out: Panhard and Levassor, Mors, Brouhot and Cottureau.

The considerable stir which was made in France and England over the matter during the latter part of last year, arising from a judgment delivered in March, and culminating in an order delivered on November 23, confirming the validity of the patent in France, threatened for a time to disturb the entire industry of both countries on account of the sweeping nature of the claims. Other patents were dug up in England, however, which seemed to weaken the Renault case, and the excitement has somewhat subsided since that time. The agreement subscribed to was merely a provisional one, subject to revision later on the issuance of the special contracts to the individual makers, and was signed under the date of December 22, 1905. On March 10, 1906, a meeting was held at which the terms of the final agreement were discussed and certain provisions made which alter the original terms to some extent—just how far is not known.

The sense of the provisional agreement, and the clause relating to the licensing of foreign cars, are given in the following extract:

"The undersigned motor car manufacturers in France, after having considered: (1) The patent of Mr. Louis Renault, dated 9th February, 1899, No. 285,753, relating to speed-changing gear; (2) a judgment delivered the 31st of March, 1904, and an order delivered on the 23rd of November, 1905, which maintained the validity of said patent; and acknowledging that they use transmission and speed changing mechanism with direct drive on the chassis they make, which, according to the said decisions are infringements of the said patent; agree to pay Messrs. Renault Freres a royalty of one per cent. on the retail catalogue price of the chassis, in respect of each chassis sold. Chassis or vehicles having a drive by chains or gearing between the differential gear and the wheels are not to

be subject to this royalty. It is understood that royalty shall only be payable in respect of chassis invoiced after the 1st of December, 1905.

"Messrs. Renault Freres will supply the undersigned with license plates having the number of the patent and a current number, which plates will be attached to each speed changing gear.

"It is also understood that the chassis made by the undersigned in France, for which they shall have paid to Messrs. Renault Freres the royalty above indicated, may be imported into foreign countries where Messrs. Renault Freres have patents for the said invention without it being necessary to pay any other royalties in respect of these foreign patents. Messrs. Renault Freres undertake, as regards vehicles imported into France, that the terms of royalty which they claim shall be at least double those fixed for chassis manufacturers in France."

Johnson Cars Harvester May Build.

The International Harvester Co., of Sterling, Ill., is going into the manufacture of automobiles. A Mr. Johnson, who is said to be the mechanical expert of the implement works, has evolved a type of gasoline buggy, which has been attracting considerable attention on the streets of the Western town upon which it is being tested. It is stated that the International Harvester Co. is endeavoring to get a machine for use by their canvassing salesmen and rather than benefit by other manufacturers' experience, the company itself is undertaking the work of building cars. If the type of carriage, for it is that in every sense of the word, built by Johnson should prove practicable, the harvester company will go into the manufacture of them on a large scale. The machine creation of Mr. Johnson's inventive mind looks akin to what used to be called "democrats." It has high wheels, fitted with solid rubber tires, and the power is furnished by a single cylinder engine directly under the seat. The wheels are driven by chains on both sides. Naturally the machine will be marketed at a price much less than any other make now extant.

Walter Completes Final Details.

All the details of organization of the reorganized Walter Automobile Co., which is to build the Walter car, now made in New York City, have been consummated, and the work of building the company's plant, in Trenton, N. J., will begin as soon as the contract can be awarded.

As has been told in the Motor World, the plant of the company is to be located on the site of the Consumer's Brewing Co., close to the Pennsylvania Railroad Company's shops. The building will be 400 feet long and 30 feet in width, and it is planned to begin work with a force of 300 or more men.

The stockholders of the reorganized company have elected these officers: President, Frederick Kuser, of New York City;

vice-president, William Walter, of New York City; secretary, Washington A. Roebbing, II, of Trenton; treasurer, John L. Kuser, of Trenton, and assistant treasurer, R. V. Kuser

Stewart no Scalper, Sues Chicago Showmen.

According to dispatches from the Windy City, some of S. A. Miles's helpers have gotten him and the Chicago Coliseum Co. into hot water. William A. Stewart, son of a prominent Chicago doctor, has brought suit against the Coliseum Company and Miles, asking \$10,000 damages. Stewart claims that during the Chicago show, while waiting to take his mother and some friends into the show, he was mistaken for a ticket speculator, taken into the manager's office, where he was accused of being a "scalper" and after being searched the tickets were taken away from him and he was ordered to leave the place.

Parish Elects Officers, Prepares for Work.

The Parish Manufacturing Company's new plant, at Reading, Pa., for the manufacturing of nickel-chrome steel frames, is about completed and will be in operation by the middle of next month. At a meeting of the company held in New York on March 19th, the following officers were elected: R. E. Jennings, president; J. E. Sullivan, first vice-president; N. E. Parish, second vice-president; W. B. Kunhardt, treasurer; Edward Jennings, secretary, and N. E. Parish, general manager. Hayden Eames, of Cleveland, Ohio, has been appointed general sales agent.

Why Lear will Leave Columbus.

The Oscar Lear Automobile Co., makers of the Frayer-Miller air-cooled cars, are going to move from their present location at Columbus, Ohio, to Zanesville. The latter city's decision to donate ten acres of land and enough cash to make up \$100,000, was inducement enough to influence the change. At present the Oscar Lear Co. employs about fifty men and is turning out about 100 cars a year, but it is stated that as soon as the Zanesville plant is got in working order, 500 cars per year will be the capacity.

Cooney to Make Electrics.

The Cooney Carriage Co. has been incorporated at Toledo, Ohio, with \$10,000 capital, to manufacture electric vehicles. Charles R. Bowman is president; James J. Cooney, vice-president; George L. Shanks, secretary-treasurer, and John McGettigan, general manager. The officers, with F. E. Bullard, constitute the board of directors.

To Make Parts in Sandusky.

The plant of the National Valve Co., at Sandusky, Ohio, which has been idle for more than a year, has been sold and will soon be turning out automobile parts and launch engines. E. M. Barnes, of Cleveland, formerly identified with Wayne interests, is stated as the purchaser.

FISK TIRES

— ARE —

POSITIVELY ACCIDENT PROOF

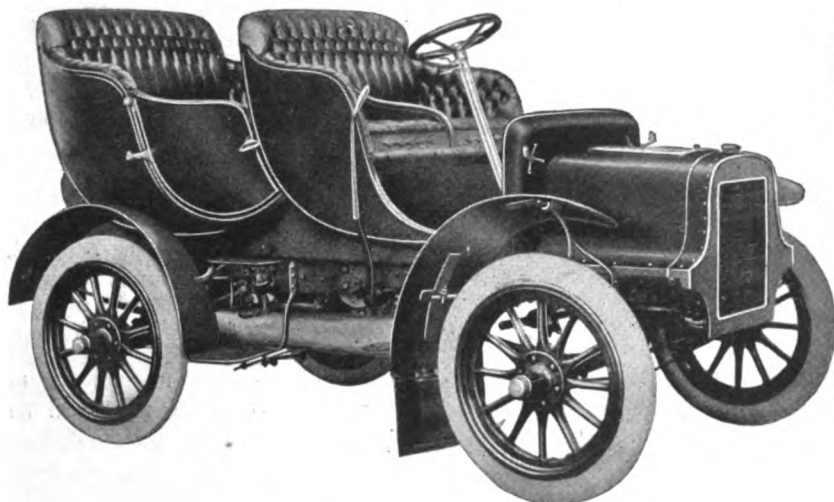
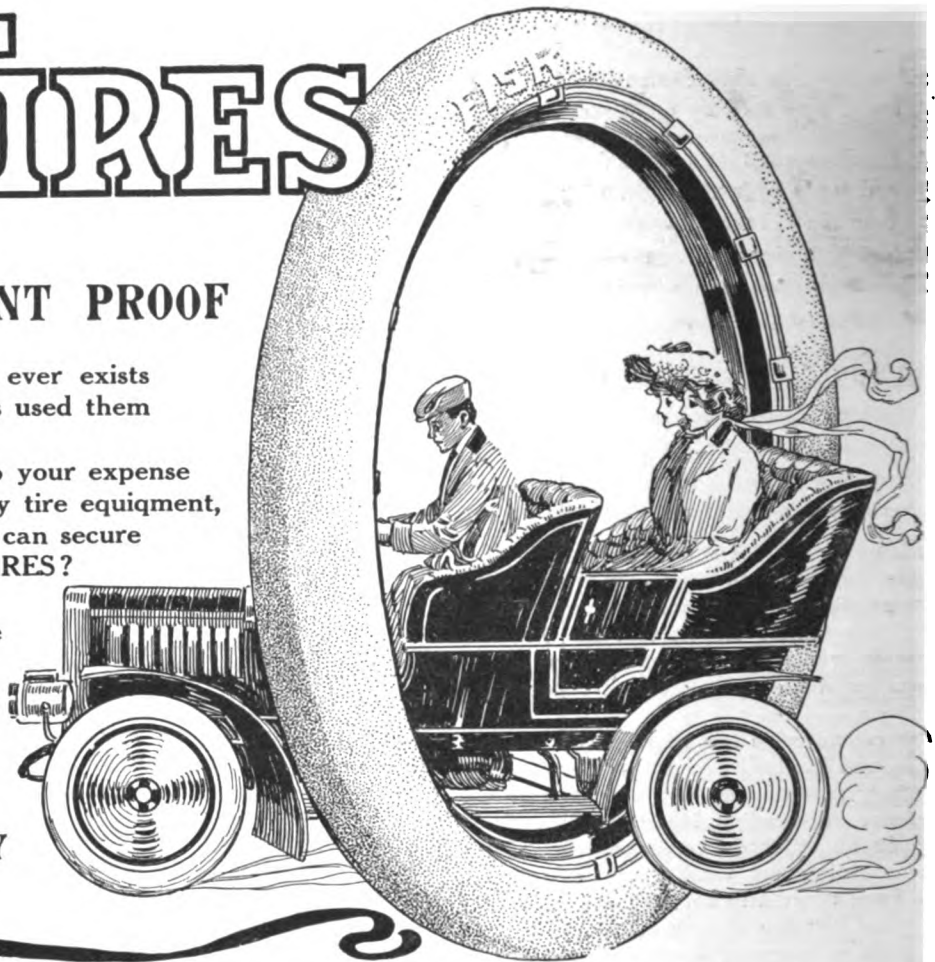
No shadow of doubt or fear ever exists in the mind of a man who has used them

Why add to your trouble and to your expense account through the use of ordinary tire equipment, when, at the same cost, you can secure the up-to-date FISK TIRES?

Why not have these comfortable tires—these durable, safe, long-service tires
"The Reliable Type"?



THE FISK RUBBER COMPANY
Chicopee Falls, Mass.



CADILLAC

MODEL M

\$950.00 F. O. B. Detroit

The worthy successor of our 1905 Model F, of which more were made and sold last year than any two other models combined.

The following letter is one of many which shows WHY:

Cuba, N. Y., January 30, 1906.

"CADILLAC MOTOR CAR CO., Detroit, Mich.

Gentlemen:—September 1, 1905, I purchased from the Centaur Motor Co., Buffalo, one Model F Cadillac. This machine I have used for livery and have made upwards of 2,000 miles. It has not caused one moment of trouble or one cent for repairs. It has made all the hills in this section, which are very bad, with perfect ease, no matter what the load might be. When I purchased it I did not know any more about a machine than a boy of ten years, but found it to be very simple in every detail. I cannot speak too highly of the Cadillac, it is certainly a winner.

F. L. HALLACK."

IS IT ANY WONDER THAT CADILLACS SELL?

CADILLAC MOTOR CAR CO., - - - Detroit, Mich.

Members Association of Licensed Automobile Manufacturers.

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NEW YORK, MARCH 22, 1906.

Socialism and Automobiles.

From the spread of crime to the dissemination of the brown tail moth range the offenses for which the automobile has been indicted, tried and found guilty by its narrow minded opponents who are in large measure recruited from the ranks of the anti-everything element of the public. But now no less an authority than the president of a university comes forth solemnly declaring in the course of an address that "nothing has spread socialistic feeling in this country more than the use of the automobile. To the countryman, they are a picture of the arrogance of wealth, with all its independence and carelessness."

There is little doubt that the modern high powered car with a closed body represents the last word toward the attainment of that degree of luxury that is far beyond the resources of the average individual, but for every car of this kind it is safe to say that there are a hundred or more that cost but a fraction of what these rolling palaces represent. No cry has ever been raised that the huge steam yachts of many times

greater value than the most expensive automobile, are productive of socialistic tendencies on the part of the owners of the thousand and one smaller and less pretentious craft which by comparison are to the former what a rickety buggy with a broken winded nag is to a new model limousine.

Of the 100,000 cars that are said to represent the country's showing, probably not more than thirty per cent. are of the kind that the college president fondly believes move the downtrodden son of toil to socialistic wrath at the sight of its "arrogance of wealth." What of the thousands of runabouts and light cars that so greatly outnumber their more costly and more speedy contemporaries? They are already within reach of many of those who will sooner or later become their possessors themselves, but who at the present moment regard them as an omen of wealth untold and something to be suppressed. The socialist is such from choice solely and when he accumulates sufficient of this world's goods and chattels to feel independent, he ceases to believe in the doctrine of equality. If the sight of several thousand dollars worth of automobile passing him on the road in a cloud of dust rouses his unreasoning ire against wealth and all that it represents, the possession of a few hundred dollars worth of automobile will place him in the same position with regard to his less favored fellow man. On the whole, it would seem that the automobile was responsible for the spread of socialism to just the extent that it is for the dissemination of the brown tail moth.

Status of the Change Speed Gear.

In reviewing the great changes that have been wrought in the car as a whole, and by means of which there has been evolved from the crudity of but a few years ago, the finished vehicle of to-day, the anomalous status of the change speed gear cannot fail to impress itself upon the observant. From the vantage point of a century or more of precedent and established practice, the professional engineer did not regard any such makeshift as the first automobiles were, in a favorable light. As the work of those outside the charmed pale of the profession, these first attempts were considered as beneath the notice of the technically skilled, and as for the change speed gear with its sliding, clashing pinions, it was nothing short of barbarous. Technical opinion did not grant the automobile a very long lease of life at the outset; it was

deemed but the fad of a few enthusiastic experimenters that would pass away as similar attempts in the past had done before it. As for any such method of changing gear ratios as sliding the pinions together while in motion, that was something that violated every rudiment of the art and could not possibly endure.

It is a curious reflection upon the fallibility of those too strongly reliant upon dogma and precedent, that the change speed gear of the sliding pinion type should be one of the parts of the car that has survived the almost complete process of transformation that the car has otherwise undergone during the past few years. Individual clutches, planetary gears, sliding keys and numerous other methods of coupling adjacent pinions without the necessity of sliding them into engagement have all been resorted to with indifferent success. For some time the planetary type of change speed gearing held its own on runabouts and light cars and still continues to do so, although it is significant that even low powered runabouts of the latest design embody a sliding type of gear. In one or two instances, the planetary gear and the individual clutch system have held their own on heavy cars, but they are so few, both numerically and comparatively speaking as to hardly be sufficient to constitute the exception that is said to prove the rule.

Barring these few, the use of what is known as the Panhard sliding type has come to be practically universal, that is, its principle of sliding the pinions into mesh with one another, for so far as the method of accomplishing this is concerned, there are two distinct schools—the straight and the selective. Various claims to priority between the two have been put forth from time to time, but regardless of their standing it is a matter of common knowledge that the former was the first to meet with general acceptance. It was moreover, the type that first called forth the disapproval of the profession. That it was far from perfect was not alone fully recognized by its designers, but was eloquently testified to by the mangled condition of the pinions after a few thousand miles running. The strain and wear to which the teeth were subjected could only be appreciated by examining a few such specimens as were returned to the makers for repair and renewal.

The extremely heavy wear to which the pinions are subjected on their engaging edges has resulted in exhaustive study and

experiment with a view to the production of material calculated to withstand this clashing and grinding. As a result it is now the exception rather than the rule to come across the battered specimens of former days and there is moreover far less shock and jar attendant upon the operation of gear shifting. Inventors have not been idle in the interim by any means, for infinitely variable gears ad libitum have been brought forth, though to small purpose, for none has succeeded in displacing the now firmly established type. It would appear at the moment as if the supremacy of the latter, would in the end, yield only to the engine that will be entirely independent of any form of change speed gear.

Fake Automobile Schools.

As long as humanity is possessed of the something for nothing idea, or next to nothing, the crop of come-ons will be good and the business of relieving them of their money will flourish. The combined effort of all the reformers in the world will never suffice to stamp out such practices, but they can at least be suppressed to an extent where the way of the transgressor will be hard indeed and victims few and far between. This would appear to be the cause of the fake automobile school at the present moment. The number of these institutions offering to create competent chauffeurs out of any kind of raw material in the course of a fortnight or so for the sum of \$25, is legion. Little or no attempt is made to fulfill the obligation incurred and once the victim has been bled he is thrust out to make room for more. He comes forth with important looking credentials testifying to his competency and long experience, which make him that much more a menace to the public. It is time that repressive energetic measures were taken to put an end to this species of fraud. Meanwhile owners who would hire drivers should not put unquestioned faith in every "certificate" presented by applicants.

At the rate things have progressed in the automobile industry in the past few years, there are doubtless few of us who will not be on top of the crust to see fulfilled some of the prophecies of Mother Shipton of the Automobile Club of America, given to the newspapers in the morning and solemnly declaimed over the cornerstone of the club's new house to be in the afternoon. The world do move, particularly that part of it that travels on pneumatic tires.

RACING BOARD COMPLETED.

Vanderbilt Retained, but Morrell is Missing —Chairman Lets Fall Some Opinions.

Jefferson DeMont Thompson, the new chairman of the racing board of the American Automobile Association and by virtue of that position, chairman of the Vanderbilt cup commission, has made good his statement that he would not have anyone in any way connected with automobile manufacturing interests on the board. Mr. Thompson's colleagues were made public this week. The trade flavor of the sub-committee was also hedged in with infinite care. Last year it was called the "technical committee"; henceforth the men comprising it will be merely "technical advisors," and they will have no vote. The former technical committeemen were not supposed to have a vote in affairs which came up before the racing board last year, but it is well known that they were most punctual in attendance at meetings of the board, and that voting regularly became their habit and recognized privilege.

As if to return good for evil, E. R. Thomas, the Buffalo manufacturer of the car which bears his name, has been appointed on the Technical Advisory Board. Mr. Thomas, it will be remembered, made a strenuous protest against any person in any way connected with the trade being appointed on the racing board. In addition to Mr. Thomas, the other members of the Technical Board are A. L. Riker, of the Locomobile Co., was a member last year; Peter Cooper Hewitt, of New York City, and Henry Ford, whose long experience in matters mechanical ought to prove a valuable asset on a committee of this character.

There are fourteen voting members on the new racing board, of whom seven, including the chairman, reside in New York City. One-half of the members served in a similar capacity last year. Robert Lee Morrell's name is not on the list, and naturally this will occasion some surprise especially when it is considered that the former chairman unmistakably let it be known that he would not refuse a seat in the circle. Mr. Morrell was the one against whom E. R. Thomas directed his complaint when he requested that nobody connected with the trade be appointed on the racing board, it being alleged that Mr. Morrell holds quite a block of stock in one of the largest automobile manufacturing concerns in the country. This, however, the former chairman denies. A. G. Batchelder, the former secretary of the A. A. A., accepted office at the personal urging of Chairman Thompson, who desires Batchelder's intimate knowledge of the Vanderbilt cup affairs. S. W. Taylor is a personal friend of the chairman. He is the editor of a horse paper who uses an automobile. The Denver and San Francisco clubs are represented

on the racing board for the first time, not so much in expectation of their attendance at the meetings as in recognition of the growing conditions in the West.

The voting members of the racing board are as follows: Jefferson DeMont Thompson, Automobile Club of America, chairman; W. K. Vanderbilt, Jr., Samuel W. Taylor, E. Russell Thomas and S. M. Butler, Automobile Club of America; A. G. Batchelder, New York Motor Club; Herbert L. Bowden, Bay State Automobile Club; R. Lincoln Lippitt, Rhode Island Automobile Club; Frank G. Webb, Long Island Automobile Club; Ira M. Cobe, Chicago Automobile Club; George L. Weiss, Cleveland Automobile Club; Col. E. H. R. Green, Dallas Automobile Club; Dr. W. H. Bergtold, Colorado Automobile Club; L. P. Lowe, Automobile Club of California.

"I do not think that any radical changes in the rules governing the running of the Vanderbilt cup contest will be made this year," said Chairman Thompson, when seen by the Motor World man this week. "Mr. Vanderbilt will be back from Europe by April 3, and as soon after as possible I hope to call a meeting. I understand that Mr. Vanderbilt will suggest several changes in the racing rules, but just what they will be I am not at liberty to disclose.

"Regarding circular track racing, the statement given out that I am opposed to it is true. I do not think there is anything so uninteresting as circular track racing. I have yet to see how it can benefit the industry. There is continually an uncalled for strain upon a car going around a circular track, a strain which a car will not ordinarily meet with in a year's careful use over roads. A road contest serves to demonstrate to makers weak points in construction that can be strengthened, defects that can be remedied, improvements that can be made, and so on and is, therefore, a valuable thing for the industry."

Court Closes Garage to the O'Haras.

Mr. and Mrs. John O'Hara, of Cottage street, Jersey City, N. J., are not to have the extended privilege of invading the premises of the adjoining garage of Nelson & Ray, "at all reasonable times" to inspect the gasoline tanks of cars therein, or to hold up cars about to enter to ascertain if Vice Chancellor Garrison's recent "half pint" order is being obeyed.

The anticipated pleasure of indulging in this little pastime has been denied them by the ruling of the Court of Errors and Appeals, New Jersey's court of last resort, which modified the former injunction by reversing the lower court's decision on this point as well as that restricting the amount of gasoline to be left in the tank of a car to half a pint. The garage owners were accordingly reinstated in their right to store machines with full or empty tanks as they see fit, and the only point now in issue is their right to store gasoline on the premises in addition.

A. C. A. LAYS CORNERSTONE

Ceremonies Brief and Only the Faithful Present—Shattuck Pierces the Future.

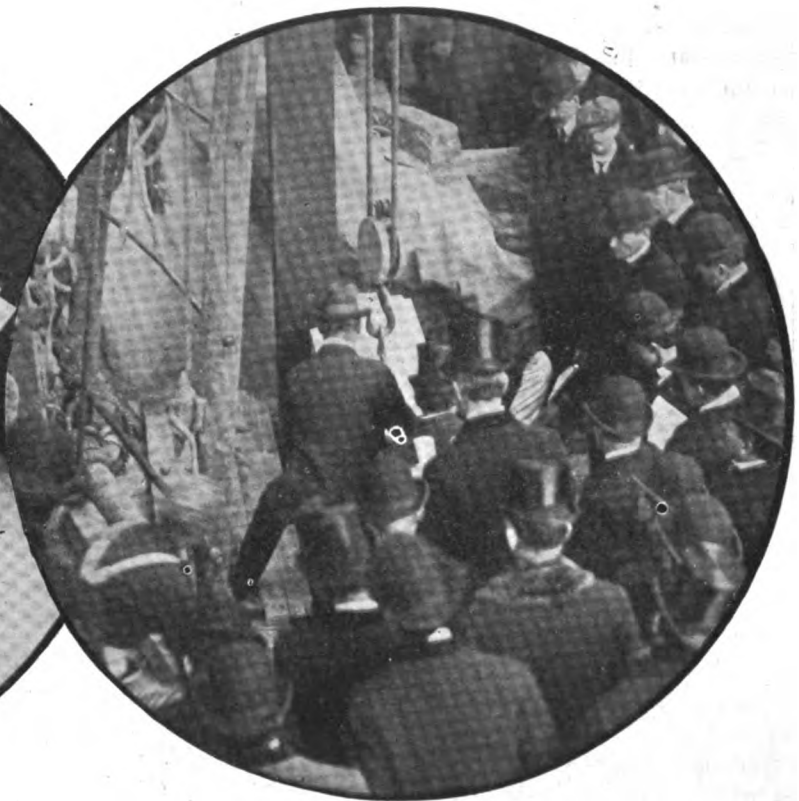
Although the cornerstone laying of the new home of the Automobile Club of America, in Fifty-fourth street between Broadway and Eighth avenue, yesterday afternoon, was intended to be an automobile function, there were more silk hats present than there were cars, and there were not many of the regulation afternoon tile either. Snow lay deep on the ground

electricity? The wonders of steam?" oratorically read the speaker from a paper. "In this age the telegraph is giving place to the telephone and to wireless telegraphy; the compound steam engine to the turbine engine, the horse to the automobile. Assuming we make as much progress each decade to come as each decade passed, who can say this prophecy will not come true? The horse will become a draft and riding animal. ('What is it now?' whispered a listener to his companion.) The traffic of the world will be carried on broad, dustless highways by the automobile. The railway will fall into disuse, its cost will be wealth lost.

were enclosed in a copper box within the stone: A brief history of the club, by George F. Chamberlin; the club book, the club badge, the present automobile laws of all the States, maps showing good roads, published by the club for the use of its members; a model of an automobile, a pair of touring goggles, a statement of aerial flights by the Wright brothers, the proof sheets of "Three Men in a Motor Car," by W. E. Scarritt, ex-president, dedicated to the club; a prophecy—"The future of the Automobile," by Albert R. Shattuck, an ex-president; a book, entitled "A Journey Through Other Worlds, a Romance of the



ORACLE SHATTUCK DELIVERING HIS PREDICTIONS.



LOWERING THE STONE INTO PLACE.

and only the Truly Faithful of the club were present. A few policemen, newspaper men and casual sightseers, in all less than one hundred persons, witnessed the ceremonies. There was a prophet on hand, however, and that made some of the fun, although some one was irreverent enough to remark that the mantle of Elijah would have to fall a long way to drop on the shoulders of Twentieth Century Prophet Shattuck. The club's former president gave his prophecy of the automobile, which led one of the spectators to remark that the vision must have been obtained after a feast of Welsh rarebits at midnight.

Mr. Shattuck took for his text the eleventh chapter of Nahum, twelfth verse, in the Bible: "The chariots shall rage in the streets, they shall jostle against one another in the broad ways; they shall seem like torches; they shall run like lightnings."

"One hundred years ago who then dreamed of the wonders the Twentieth Century has produced? The wonders of

There will remain but 'a right of way and streaks of rust' * * * The automobile in its turn will disappear to be replaced by the flying machine, and our children will wonder why their forefathers crept along the dusty roads, harassed by speed laws, as they shoot through the air, even to other stars, and say with Emerson, 'Hitch your wagon to a star!'

The ceremonies opened at 4:30 p. m. with a short address delivered by President Dave Hennen Morris, with his overcoat collar turned up to protect his throat. He called attention to the growth of the club and emphasized the statement that it had something more than a social side, and that the building would stand as a monument not only to the sport, but to the advancement of a growing industry.

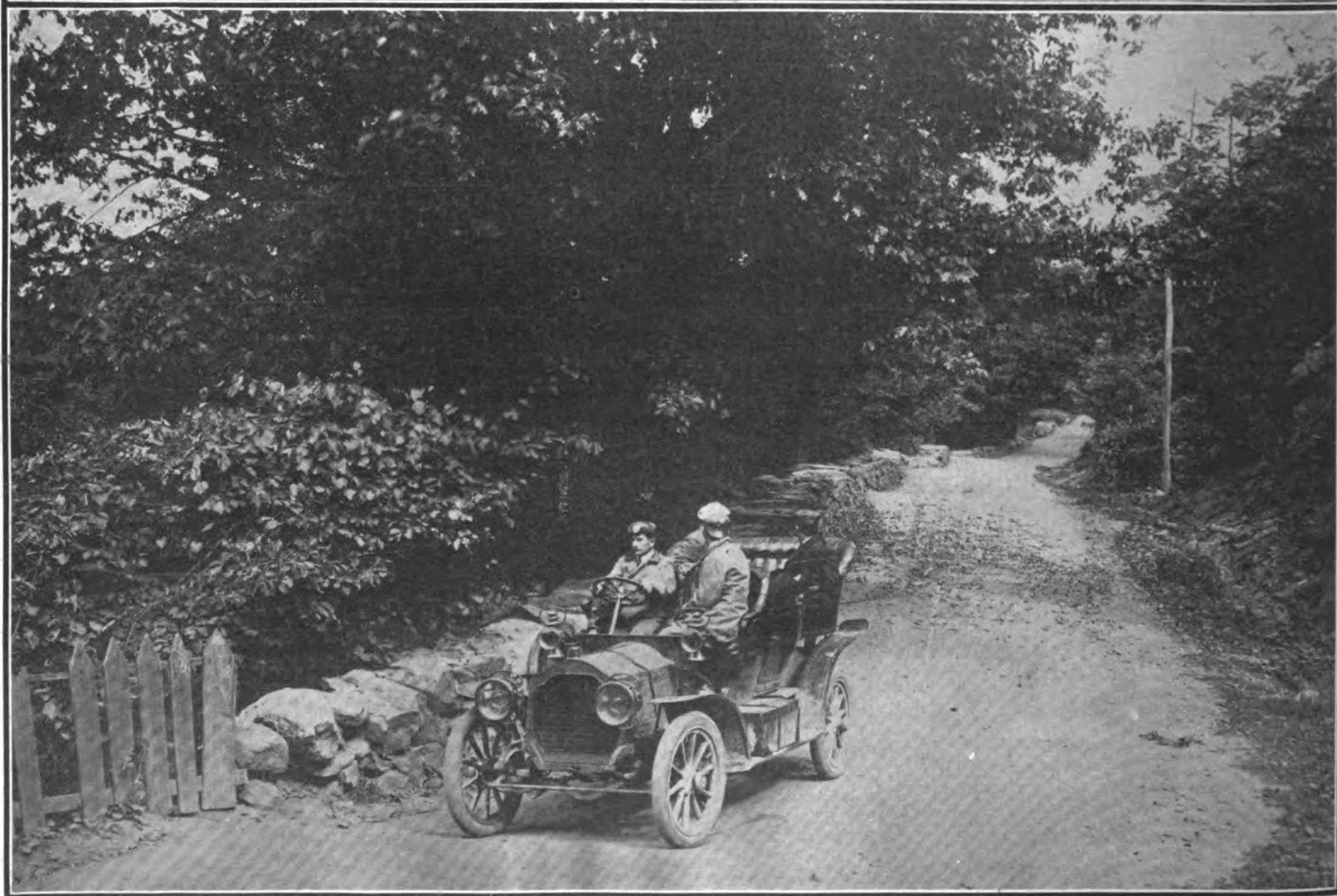
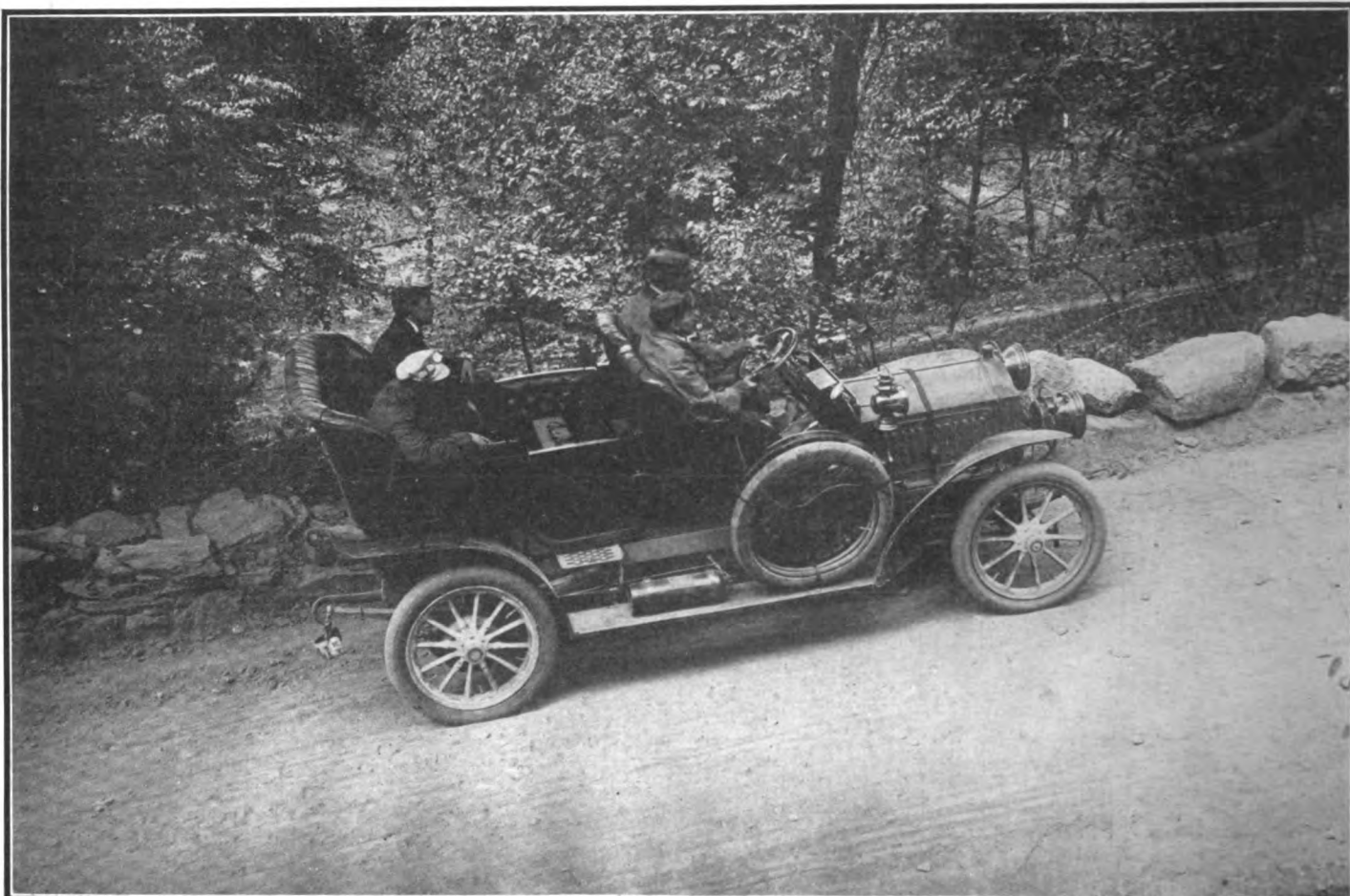
The stone was then hoisted into place, Dr. Schuyler Skaats Wheeler, chairman of the building committee, mortaring it with a silver trowel. Mr. Wheeler made a few appropriate remarks. The following articles

Future," by Colonel John Jacob Astor; current numbers of the automobile journals, the silver coins of the United States and the daily newspapers of New York City of yesterday's date.

The ceremonies closed with a prayer by the Reverend W. Markle Smyth, of the Central Presbyterian church.

Club will Try Alcohol.

George F. Chamberlin, chairman of the committee appointed by the Automobile Club of America, to draw up suggestions for a series of practical tests of the different parts of the car to be carried out during the coming season, has handed in his report to the Board of Governors. Until the latter act upon the report the nature of the suggestions will not be made public, but it is generally understood that chief among them will be a recommendation that alcohol as a fuel for the motor be submitted to a thorough and exhaustive test.



Two Views of the $2\frac{1}{2}$ Miles Hill in Wilkes-Barre, Pa., up Which Automobiles will Contest on May 10th.

ABOUT THE ARMY AMBULANCE

Factors that Determined Choice of Steam Machine—Severe Tests Employed.

When the announcement was made several weeks ago that a motor ambulance service is to be installed in the hospital service of the United States Army, and that the choice of type had fallen on a well known steam vehicle, it was not stated that the vehicle had already been fully accepted by the department, and that it had been put

it may seem, the very factor which has served to introduce the motor vehicle to this branch of the governmental service now, has for several years acted as a deterrent, and strongly cried against its use up to the present. The man responsible for the anomaly in this particular instance is Captain Clyde S. Ford, Assistant Surgeon, U. S. A., who is at present attached to the Medical Supply Depot in New York. And the story of what would seem at first thought to have been a senseless delay in the matter, and the reasons for the choice of steam as a motive power in preference

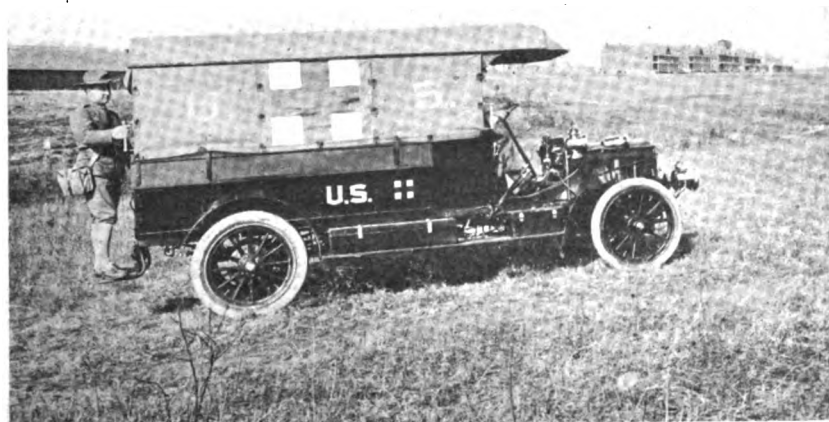
efficiency in the work. These conditions, although framed more than two years ago, when the art was still in a highly experimental state, conform remarkably to the practice of the present day, and serve to demonstrate at once the writer's engineering ability, and also the degree to which the designers have been hampered by adherence to current practice, which always follows along the lines of least resistance and chooses the most obvious means to an end.

According to his idea, the prime requisite in the adoption of a motor vehicle for government work, was that it should not involve the adoption of any new principle, or the introduction of new materials into the department. Then, as far as the prime mover was concerned, the most important point to be considered where the possibility of traveling over rough roads, or no roads at all at times, was to be taken into account, was that an even turning moment should be gained to the best possible degree, and that the power of the motor should be available throughout the greatest possible speed range. In addition to this, there was, of course, a clause providing for a due factor of reliability and fitness for service under prolonged strain subject to adverse conditions.

Following along this line of argument, Capt. Ford came to the conclusion that in the use of steam, and steam alone, was the solution of the problem to be found and that, neither electricity nor the internal combustion motor could be made to serve the purpose, at least not in their present stage of development. Then, by way of conclusion, since he had been unable to discover any machine which came up to the requirements, as he had conceived them, he outlined an ideal machine, which, according to his lights, should be able to serve the purpose with credit.

And there the matter rested for full two years, at his own suggestion, although Capt. Ford continued his investigations in the matter. Then at length, he came into touch with Roland White, of the White Sewing Machine Company, and found in him, not simply the first engineer who was willing to take up the matter with him from an engineers' standpoint, and build a machine especially for the work, but as well, the designer of a car which strange, though it may seem, corresponded in all its essential details with the ideal which he had conceived independently some time before.

Owing to pressure of business on both sides, further work was delayed for some time, when, at the beginning of this year, White, who had agreed to build a machine according to certain specifications differing somewhat in minor detail from the original, offered to supply him with a stock machine put to a specially lengthened chassis, and agreeing to "make good" if it failed to come up to the requirements. And so the machine was turned out, work on the model originally planned being set aside until



into regular service at the Washington General Hospital, where in what is practically municipal service, it is being put to a practical test of its general fitness for the work. Although it may be several years before the motor vehicle shall have taken up the position which it fully deserves in this field, yet the wedge has been entered, and its full application seems to be only a matter of time. To the average mind, there seems nothing out of the ordinary in the announcement, rather, it is a matter of wonderment that it has not come sooner, but when it is considered that all matters governmental move in a cycle of stereotyped routine, and that the very essential factor of red tape must seriously interfere with any novel propaganda, the only wonder is that even now the movement has progressed to the extent that it has.

That it is so, however, is due chiefly to the efforts of one man. For without the effect of a constant personal interest in the matter, it is quite likely either that the service would not have been applied at all for some years to come, or else that it would have been applied several years ago, with possibly disastrous results to its future importance for anomalous as

to gasoline, brings out several points of great importance concerning the questions of the prime mover of the motor vehicle where constant and hard usage is to be met under conditions seldom favorable, and never of the best.

When asked by a Motor World man for some details of the projected use of the motor vehicle by the government, Capt. Ford told how he first became interested in the motor car some four years ago on his return from the Philippines, when he became convinced that auto-propulsion might become of inestimable value to the ambulance service which was fast becoming archaic. Accordingly he made some investigations on his own responsibility touching the practicability of the machines then in use, corresponding with the various makers in the country and seeking to determine how far they had progressed, and whether they were ready to present a mechanism which would be in any degree reliable in constant and arduous service, particularly in emergency work. The result of the information he thus gained, which was embodied in a formal report to the Department later on, was that he formulated certain ideal conditions which must be fulfilled in order to gain the desired

the success of the present venture had been determined. After being tested out in certain manoeuvres at Fort Myer, Virginia, it was sent to Washington and assigned to the General Hospital there, where it is now in use.

Speaking more in detail of the reasons for fixing upon a steam machine, Capt. Ford said: "While the gasoline machine still represents the result of an experiment to a certain extent, in that its motive power has not been adopted to any wide extent in the engineering world up to the present time, the steam car represents an advancement on a system long in use, and one well known. More than that, while the gasoline machine is in many respects unmechanical, the steam car is fully up to the standards of the best engineering practice and, insofar as the use of superheated steam in a compound engine using an open condenser is concerned, is ahead of it. And just there, to my way of thinking, lies the chief point in favor of the steam machine. For although the generator is thoroughly compact and unobtrusive, yet it is fully able to carry all the work which the engine can perform, and at the same time the use of superheat gives a storage of energy, comparable, in a way, with that obtained where a large steam space is available, or to the use of a large flywheel in an internal combustion motor, yet superior to the first, in that there is an economy of space, and possessing an advantage over the second, in that it is available at any time, so long as the heat is retained, and that it is independent of the speed of the motor, whereas the latter depends solely on rotational speed for its value, and hence, is available at low speeds, even in starting.

"That consideration," he continued, "at once leads to the matter of torque, and in that the internal combustion motor falls down, for although in ordinary work on good roads, the gasoline machine is doubtless most excellent, still when it comes to a bad hole, even with the use of the low gear, starting can be accomplished only by allowing the clutch to slip momentarily, at least, since the moving motor must be connected to the stationary mechanism, and there for an instant, at least, you must have an unmechanical arrangement of parts, and a loss of power. Then, too, with the gasoline machine, your power for starting depends solely on a high rotational speed, and that, developed by a succession of powerful impulses softened in intensity only by the flywheel, while with the steam machine, you have the entire boiler pressure available for starting, and that, too, in the form of a steady, concentrated effort. Thus, while in the one case you have what amounts to a series of hammer blows, with the best effort of the motor only to be had at high speeds, in the other, you have a positive and fairly uniform effort throughout the stroke, and available at any speed.

"On this account, and because of the general reliability of the steam machine, take

it the year round, it seems to be superior to the gasoline machine in work such as that contemplated, where the requirements will be most rigorous. Also, it serves to advantage in that it introduces no new element into the department, and involves the installation of no supplies not already provided for in the existing classifications.

"The machine which is now in use, is practically a stock chassis with a lengthened wheel base. The frame has been strengthened sufficiently to bear the added load, and the spring suspension has been altered suitably. Otherwise, the machine is the same in every detail as the regular models put out by the White people. The wheel base is 132 inches, and when it is considered that the standard wheels and axles are used and that the weight fully equipped is 3,250 pounds, some idea of the stability of the stock car may be gained. The weight is brought up not simply by the body, which is by no means a light one, but as well by the touring outfit, which includes a very complete set of road tools, comprising not simply parts for replacements and repairs, but implements for use on the road such as spades, axes and etc, which would be necessary in any sort of pioneer work.

"The car has been put through a very rigorous trial over the road, in which nothing has been spared, the intent being to run what was practically a break down test. And in the course of several thousand miles of such running over rough country roads, the only mishap which occurred was the bending of the torsion rod due to throwing on the load suddenly when getting out of a mud hole. As a matter of fact, I ran the car eighty miles over a practically unused road outside of Cleveland, where in places the differential would scrape along the ground when the wheels were in the ruts, and where in one or two cases the machine had to be pried out of the holes which were so deep that the axles were dragging. And on a stretch which was none of the best, I actually attained a speed of twenty-five miles an hour by the speedometer, when carrying sixteen hundred pounds of scrap iron in the body as ballast. And yet nothing happened, the engines working beautifully and pulling the car through the worst of it as sweetly as could be desired, even when frequently the load was so great that simpling had to be resorted to in order to get a start."

"Now, as to the possible extent of the use of motor ambulances in army work, I should say that it would be confined to base transportation for the most part. That is to say, to work where a comparatively large body of troops is sent out on a campaign which is to be of considerable duration, thus necessitating the establishment of a base of supplies. In such cases, of course, hospitals would be set up, and in case of action all sick and wounded would be taken there from the field hospitals and receiving stations as soon as practicable. Up to the present, the mule drawn ambulances have

been used, and their rate of speed is so low and their capacity for continuous work so limited that such work involved either a great consumption of time, or else the use of a very large force, which is impracticable in most cases, because of the great expense coupled with the fact that the equipment is utterly valueless except in time of action.

"For such work, then, which from the nature of things must be for the most part only in territory which is supplied with fairly good roads, I think that the motor ambulance can be used to the utmost advantage, and can be made to replace from four to ten mule teams, according to circumstances. That is to say, depending on the conditions of the roads and the possibilities of maintaining a good rate of speed. But for anything of the nature of pioneer work, where highways are to be abandoned and all sorts of unfavorable conditions met, I think that the mule team cannot be superceded, at least, not at present."

Hear the Voice of Hohokus, B'gosh!

Ramsey's Grange, No. 135, of Hohokus, N. J.—of course, you all know just where Hohokus is located—has arisen in its might against any improvement or development of the roads in the township, taking this stand because automobilists on their way to Tuxedo and nearby resorts occasionally pass over the highways.

Proposal was made by the Township Committee to macadamize Franklin turnpike to the State line, the sum which the township would have to pay being small because of State appropriations and offers of contributions from automobilists living along the roadway. But the members of the grange in meeting last Friday night, were up in arms the moment automobiles were mentioned, and passed resolutions declaring:

"We condemn the spending of one of the hard earned dollars of our citizens for the building of said road, and we regard any township committeeman voting for the same an enemy to the common good."

After passing some more resolutions attacking the Vanderbilts because of their trouble in Italy and slurring automobiles in general, the grangers adjourned.

'Bus Line to Beat Railroad.

The Los Angeles-San Fernando (Cal.) automobile stage line which, as was told in the Motor World would be formed to run in opposition to the Southern Pacific railroad, because it would not build a new station at San Fernando, has started operations. Another town, Downey, will establish an automobile line with Los Angeles.

For Motor Stages in Southwest.

The Southwestern Transit Co., which has been incorporated at Guthrie, Oklahoma, with \$35,000 capital, proposes to establish automobile stage lines throughout the territory and Texas. The company already has a line operating from San Angelo, Texas.

TO WARM THE KEROSENE

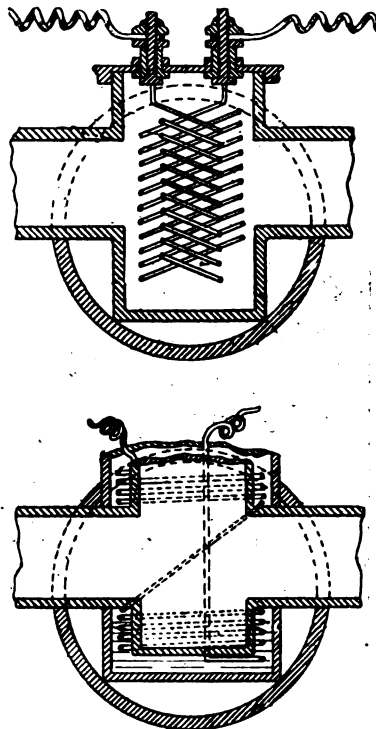
How an Ingenious Inventor Employs Electricity to Effect Quick Generation of Gas.

Experiment and practice have shown conclusively that the only drawback to the use of what have come to be known as "heavy oils" such as kerosene, owing to their higher specific gravity, is the difficulty in getting the engine under way. It is entirely a matter of temperature, which, of course, would make getting the car started in winter a much longer and more tedious job than in summer, where kerosene is employed as a fuel. But once running for a few minutes, or long enough to warm up the engine, the employment of fuel of this kind presents no difficulty whatever. Numerous expedients have been resorted to in order to obviate this difficulty, but until recently the use of a torch to assist in the starting process seemed indispensable. It appears strange that the simple addition of a gasoline carburetter to perform this function should not have presented itself to the mind of experimenters in this field before. With the aid of gasoline the motor may be started immediately and as soon as warm, which seldom entails more than five or ten minutes running, the gasoline supply may be shut off and the kerosene turned on. It is one of those solutions of a vexatious problem that is so absurdly simple as to make its deferred discovery a matter that appears inconceivable—after it has been effected.

This, however, has not deterred inventors from continuing along the same line as witness the product of the inventive genius of a son of France. The novelty of his idea consists in the employment of electricity as a source of heat to raise the temperature of the liquid fuels which will not vaporize at ordinary temperatures, such as "petrole lampant" which is the Gallic equivalent of common kerosene. In the preamble to his claims for the invention, he recites the facts referred to above and states that the apparatus is designed to overcome the difficulties of starting the motor whether with kerosene directly or through the aid of gasoline. The manner of applying the electric current is, of course, along lines made familiar by the use of electricity for heating in various other fields, and the details of its application will be clear from the following description of the apparatus and the sketches illustrating it. The body of the latter consists of a chamber through which the carburetted air must pass on its way to the cylinder. And in this is placed a hollow rheostat composed of windings of fine wire in the form of a spiral, the terminals of which are indicated and which are, of course, insulated from one another and their support. They are connected to some convenient source of current such as the

usual set of accumulators for ignition, the voltage and capacity of the rheostat being calculated with this form of supply in view. The second figure illustrates a horizontal section, making clear the disposition of the parts of the device.

In order to start, it is only necessary to turn on the current by means of a switch placed in the circuit, and as the rheostat has a very high resistance, it becomes hot immediately. The warm air thus produced ascends the central tube and is mixed with the fuel, soon producing sufficient gas to give the first few explosions. As the electrically heated air intake chamber is also



surrounded by an air jacket through which the exhaust from the motor is conducted on its way to the muffler, it is only necessary to use the current for a few minutes when the switch may be opened.

Sales on Instalment Plan.

It would seem that the popularization of the motor car has come at length—at least to the Britisher—after years of hopeful prophecy and vain expectation, for the trade in England has now come to a point where it is placing a high grade product within the reach of the individual of limited means and high aspirations, not through a vast reduction in price, but through the medium of the "easy payment system." No less than four firms handling cars which are by no means unknown propositions, have adopted the practice this year. Their cars represent one home product, two cars of American make, and one made in Belgium. By the payment of twenty-five per cent. of the entire amount of the purchase, the buyer becomes full owner of the machine, and the balance is paid in installments graded to his liking.

HOW POWER IS WASTED

Complications of Gasolene-Electric Systems that Lead to Loss and Serve no Purposes.

When the gasolene engine was such an unknown quantity on the automobile that there never was any certainty of its getting there and back, sufficient reason existed for adding a factor of safety in the shape of an electric generator and a set of accumulators on vehicles intended for public service in which reliability is a sine qua non. But, in this country at least, there are still some engineers in the field in question, who are so far behind the times as not to have come to a realization of the fact that the internal combustion motor has come into its own and no longer requires any factor of safety other than that to be found in its own design and the efficiency of its accessories.

Then why burden it with a small sized central station on wheels simply because the vehicle in which it is installed is to be run for hire? Viewed from an engineering standpoint, the gasolene driven commercial vehicle of the present is a highly efficient piece of mechanism in that its complete power plant constitutes but a reasonable proportion of the total weight—usually about twenty-five per cent., and further that its carrying capacity bears a reasonable ratio to the total weight of the vehicle. Lifting his own weight was long considered a good test of the average man's strength, and some of the pioneer commercial automobiles could not come up to the archaic standard, but capacity has increased and gross weight decreased until the two bear a relation to one another that makes this comparison of little value.

Every step in the chain of operations through which power must pass from its primary generation as energy until it is utilized at the driving wheels, entails a certain percentage of loss and the greater the number of steps the greater the loss in inverse proportion. For instance, the well designed gasolene motor has a mechanical efficiency in excess of eighty per cent.; the loss in the transmission will not, under favorable circumstances, be greater than twenty per cent., which would mean that something like sixty-four per cent. of the total amount of power developed by the engine was being utilized at the driving wheels. And it will be apparent that this is a substantial price to pay for but one step between the motor and the road wheel.

Again taking the theoretical value of the internal combustion motor as eighty per cent., the next step in the process in the case of the overweighted travelling powerhouse type of car, is the dynamo, for which an efficiency of ninety per cent., is a liberal rating. This single step then reduces the output to approximately seventy-three per cent. Next in order comes the storage battery, the efficiency of which may be

granted to be as high as eighty per cent., although it will fall considerably below this in constant service and under unfavorable conditions. This will make a further inroad by reducing the total percentage of the output of the engine itself that reaches the accumulators in the form of stored energy to sixty-seven per cent. There is still another step in the transformation process—that of redelivering the power to the electric motors and through them to the gearing and finally to the driving wheel. With the utmost liberality that may be accorded the best types of machines designed for the efficiency of the electric motor will not exceed ninety per cent., which brings about a further reduction to sixty-one per cent., and this must still be reduced by the loss in the gearing. There is little doubt but what the latter absorbs fully as much power as the transmission of the average gasoline car, still for argument's sake it may be placed as low as fifteen per cent., which brings the total down to slightly under fifty-two per cent.

That is, scarcely more than half of the power developed by the engine finally reaches the driving wheels of the car which in order to produce this complicated chain of operations is burdened with a load that makes the ratio borne by its total weight to its carrying capacity so disproportionate as to be farcical. Of course, it may be said in its favor that for a considerable portion of the time, the electric motors of such a car are being run direct from the dynamo so that at least one of the wasteful steps in the conversion is eliminated, beside which the generator is also charging the accumulators. This must be conceded, but it has little or no bearing on the result for the frequent stopping and starting necessary with such vehicles causes a very heavy draught on the accumulators, so that the period during which the latter are in active use will when averaged up closely approximate the entire length of time the vehicle is running.

The efficiencies enumerated all have reference to the capacity of each portion of the mechanism under favorable circumstances; all are subject to reduction under adverse conditions brought about by wear and tear and here again the combination car shows to a disadvantage for there are few things that deteriorate to the same extent under such trying service as 'bus work, as the accumulator. Add to all this the fact that experience invariably demonstrates the impossibility of maintaining even the percentages of efficiency given over long periods of working and the recommendations of such a cumbrous system are slim indeed. At the end of a year, the gasoline power plant's efficiency will not have suffered more than five to eight per cent., the greater part of which will be in the worn gears of the transmission. With the same amount of care and supervision, but without replacements in either case, the various parts of the combined power plant will have suffered much more at the end of the same period.

The gasoline motor part of the plant will probably not have suffered to the same extent as its competitor that utilizes the power direct owing to the steadier running of the former, but the difference will be hardly appreciable; the efficiency of the electrical part of the plant, particularly the motors, will have suffered more while it is nothing unusual for the storage battery when used constantly in such service to show an alarming falling off in this respect. In fact, the showing of the combined power plant vehicle will not be as advantageous as that of one using accumulators alone.

By Motor Car to the Pyramids.

Invasion seems to be the only appropriate word to apply to the spread of the motor 'bus for it is now to be seen in practically every part of the civilized as well as many that can by no stretch of courtesy be accorded that title. It has literally invaded every country and every role of transporta-

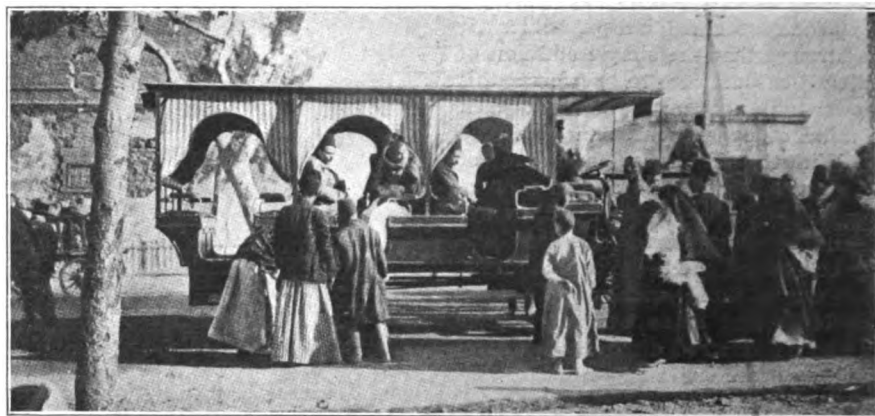
tion formerly held by the horse or even some of his more modern successors. The rhythm of its exhaust has even broken the undisturbed silence of centuries that hangs thick about the monuments left as a reminder for all time by the Pharaohs, for now it is possible for the modest fare of a quarter, to ride in a gasoline driven motor 'bus from Cairo to the Pyramids. Despite the fact that the Faithful are suspicious as to the infidel means employed to make such vehicles run, they do not hesitate to take advantage of the convenience as may be seen from the photo of one of the Cairo 'busses.

When the Motor 'Bus Reached Town.

There is a town on the banks of the Hudson not far from New York City—and its inhabitants have reason to pride themselves in their progressiveness, too—that has just acquired a gasoline 'bus as an addition to its attractions and wishes the rest of the world to know it. It is evident the occasion was deemed auspicious and required celebrating as note the following from the pen of ye editor of the local news sheet. "The arrival of the long expected public motor car last night was signalized by a burst of electric light from the dials of the

Adding Luxuries to the Garage.

Parisian garages have become noted for the choice bait held out to customers in the shape of comfort, bath and dressing rooms, newspapers, books and facilities for



reading and writing letters. Henry Fournier is now getting up a "salle d'armes" in connection with his garage in the Rue d'Aigon, where his clients may meet for a bout of wrestling, fencing, or "le fisticuff," as they call it in France. Swimming tanks probably will be installed next.

Growth of the Italian Industry.

During the last two years the Italian Motor Industry has been developed to a remarkable degree. According to a statement recently made by Marchese Ferero di Vintiniglia, the vice-president of the Italian Automobile Club, the Turin works alone turned out more than 2,000 cars during the year 1905, and the other Italian works had a proportionately large output. It is said that the output for this year will be more than double that of last.

One automobile will replace the four horses now used by the Allegheny county morgue, at Pittsburg, Pa. Commissioner L. K. Campbell has found that the plan of keeping the ambulance horses in the morgue building has proved offensive, and besides settling this complaint thinks the automobile will reduce running expenses to a great extent. Bids have been asked for.

FINE FRENZY IN VIRGINIA

Full Line of Frelinghuysen Ideas in Old Dominion Law—Four Miles Speed Limit.

Senator Frelinghuysen, of New Jersey, has found a rival in Virginia in the person of Representative Byrd, of the House of Delegates. Mr. Byrd's love of all things equine, prompted the introduction of House Bill No. 98, which regulates the "running of automobiles, locomobiles and other vehicles and conveyances whose motive power is other than animals," which bill was passed just before the legislature adjourned. In at least one respect the Byrd law is better than the Frelinghuysen bill. It is purely permissive, that is to say, it merely authorizes counties, cities, towns or villages to enact measures in harmony with its terms. In all other details it is an act that will make the motorphobe's heart jump for very joy.

Of course, it requires that all cars be numbered—\$2 per year is the fee—but they must in addition have the name and address of the owner painted upon the rear and "at night a lighted lamp must be attached to the rear in such a manner that the name and address of the owner, and the number of the machine shall be plainly visible at a distance of fifty yards." It also "shall be the duty" of every owner upon passing a toll gate to exhibit his certificate to the gateman, who shall enter name, address, number of car, and hour and day of passing upon a book. Automobilists also must display their certificates upon request, not only to any peace officer, but to "any citizen" as well.

Four miles an hour is the limit of speed in built-up portions of cities, towns and villages and "around curves or bends" and "over rises and acclivities" in the public roads and at all prominent cross roads, likewise "at points on any public highway where there is a gathering of horses or persons." Otherwise twelve miles an hour is permissible. Users of such vehicles covered by the act are required to "keep a careful look ahead for the approach of horseback riders or vehicles drawn by horses or other animals," when he shall immediately slow up and if signalled to shall immediately stop. Of course, all vehicles of the sort are required to carry bells and horns and sufficient "break or breaks"—that's the way the spelling in the bill puts it.

The penalty for violations is not less than \$10 nor more than \$100 and imprisonment for not less than five nor more than thirty days, or both. In case any damage is wrought by a machine, it may be seized anywhere in the State. Upon second conviction of any infractions of the law the registration certificate will be cancelled and another not issued forever after. Any person "whether he be an officer or not," who

witnesses an infraction, may lawfully arrest the alleged offender and hale him before the nearest magistrate.

Would Not Permit Use Twice a Week.

Of the ambitious embryonic automobile legislation that has cropped out this season, the measure just making its appearance down in Maryland entitles its sponsor to the laurel wreath. It appears that down in Dorchester county, where they raise sugar corn and oysters, the natives are friendly to automobiles most of the time, but on Tuesdays and Saturdays they want undisputed possession of the roads. Tuesday and Saturday are the market days in Dorchester county, and, it is explained in the Hastings bill, the natives fear that the automobiles will frighten their horses. A "physician hurrying to the bedside of a patient" is, however, exempt from its provisions on those days.

Jail Penalty Stricken Out.

The House has passed its bill regulating the speed of automobiles in the District of Columbia. It is the measure originally introduced by Representative Simms, of Tennessee, minus the Simms penalty clause, that sent second offenders to jail without any ifs and ands. The bill as passed, in a general way, follows the police regulations as to speed, the maximum allowance being twelve miles an hour. The penalty clause provides a fine of from \$5 to \$50 for the first offense; a fine of from \$10 to \$100 or imprisonment from five to thirty days, for the second, and a fine of from \$50 to \$250 or imprisonment in the workhouse from thirty days to six months, upon conviction the third time.

For Reduced Speed Nearing Horses.

The General Law Committee of the New York State legislature has reported favorably on the amendment to the automobile law introduced by Assemblyman A. E. Lee, of Lockport. It provides that when the driver of a motor vehicle meets a person riding, leading or driving a horse he shall, when within twenty rods of such horse, reduce the speed of his car to a rate not greater than one mile in six minutes, and if the horse appears restive or frightened bring his car immediately to a full stop at the distance of ten rods from the horse, unless the person riding, leading or driving the horse shall give his consent not to stop by voice, nod of head or wave of the hand.

To Help Garagemen Collect their Bills.

Assemblyman James A. Francis, of New York City, has introduced into the New York legislature a bill which garage owners are hoping will be passed. It gives garage keepers an unrestricted lien on cars which they have stored, repaired or otherwise cared for. The measure also includes other vehicles stored or repaired in livery stables.

RECEIVED COLORED TUITION

When Sailor-Chauffeurs Objected, they Received "Diplomas"—Then "School" Closed.

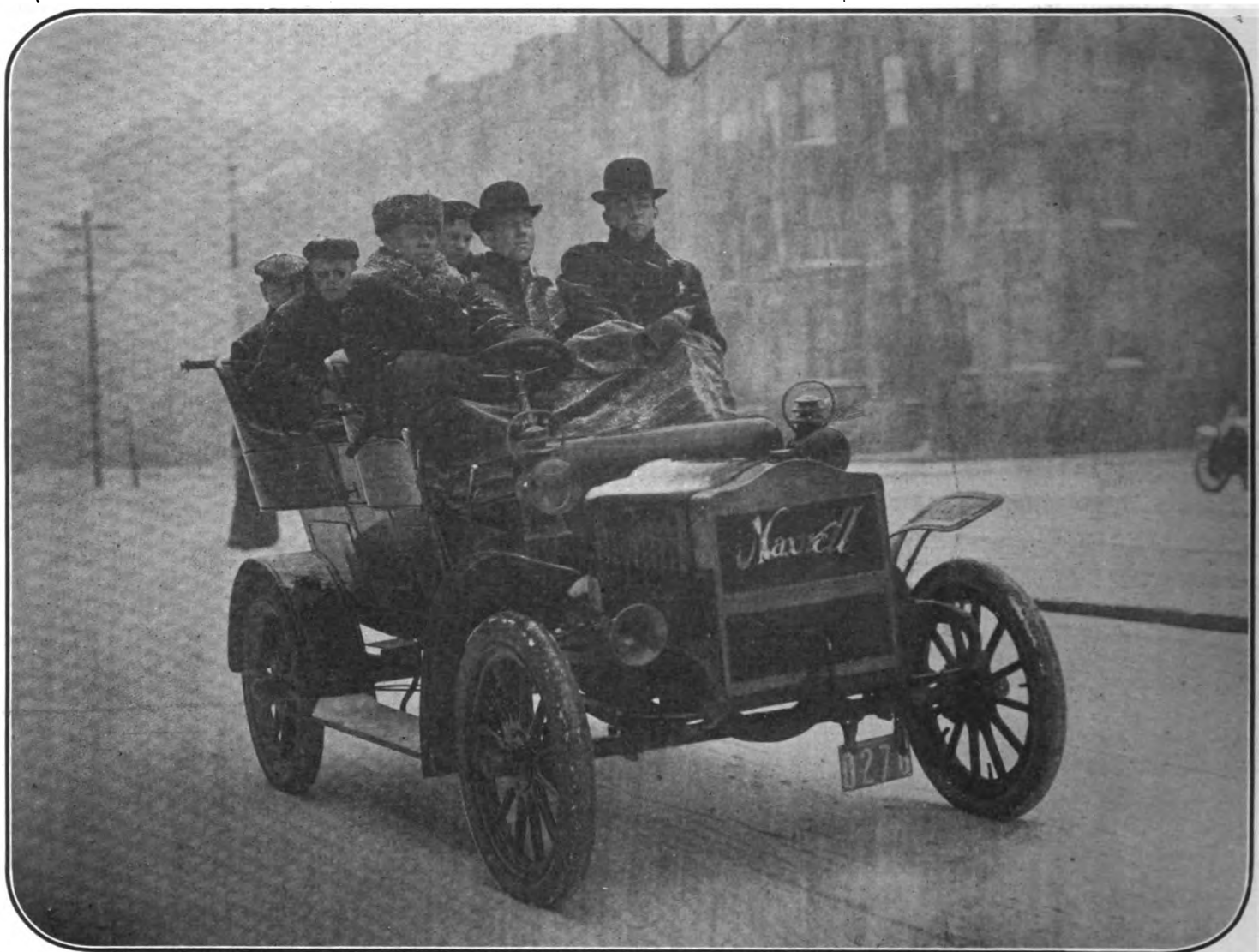
In the person of one Oscar Ohlsen, who wearied of the sea and sought a berth at the helm of a full rigged touring car, the worm turned against the fake automobile school in the shape of the West Side Auto Transportation Co., at 309 West Forty-first street. The company with the long name is Thomas Felton, a gentleman of color, who immediately made up his mind that his presence was urgently required in parts unknown when an attempt was made to serve a warrant of arrest on him.

Ohlsen and a friend recently arrived in New York from a deep sea cruise, and with several months' pay in their pockets, fell victims to the alluring prospect held out by a circular in which was set forth the fact that with a few weeks' instruction, one could become an experienced chauffeur and command a princely stipend. The various parts of the extensive curriculum of the institution were detailed with the enticing assurance that the student is to finish his course with practice on both foreign and American machines. Ohlsen and his friend parted with \$25 each to acquire this vast fund of knowledge, and in return for their money were treated to a few impromptu talks by the gentleman of color over a dismantled motor and a ramshackle car, besides being accorded the privilege of sitting behind the wheel of a dead car once or twice for a few minutes at a time.

The sailors naturally felt that they had been swindled and demanded their money back, and with a view of getting rid of them they were given certificates stating that they had been employed steadily for three months repairing and driving cars and were highly recommended to anyone needing careful drivers, though they had not been there a week. But still the deep sea salts were obdurate and their further demands resulted in what was practically a free-for-all fight in which they would have suffered severely except for their ability to use their fists. Calling in the aid of the law only resulted in causing the proprietor to vanish.

The address given is a tumble down building in an extremely tough neighborhood, and the most noticeable sign of industry about the place is to be found in the shape of stenographers getting out the alluring circulars. Scattered about was as fine a collection of the hand-me-downs of motordom of three or four years ago as it is rarely the lot of a motorist to see in one place, and on the upper floors a little tinkering was being done. An old-time four-cylinder motor on a bench and a steel frame on the floor comprised the instruction exhibits on the second floor, and the gentleman of color was attempting to ex-

Boston Blind Boys Who "Saw" the Show.



plain to a group of men how the motor should be placed on the frame. "Mr." Felton did not care to remain when he learned that someone wished to speak to him about the school and a vicious looking white man explained that he had been called away, and that he himself would supply any information that was wanted.

"Oh, we teach you everything about the automobile—we take you from one end of the car to the other. Ours is the most complete course in the city. It costs only \$50 for the six weeks' instruction, half of which must be paid now," was the reply to the inquiry as to what comprised the course of instruction.

"How many pupils have you?" was asked, counting the nine men gathered about the steel frame. "We have 700," was the reply, "but they come at different times of the day."

"But what does the course consist of; give me some particulars," persisted the questioner. This evidently aroused the suspicion of the hard looking individual, for

he terminated the interview with "I guess you want too much information for your money. We are doing a rushing business and I don't think we want any more pupils."

Ohlsen and his friend placed their interests in the hands of George Hiram Mann, who will prosecute the gentleman of color—if he can find him.

The Carload of Blind Boys.

Just what sort of pleasure a blind man could take in motoring, is not at once apparent to the average human being. For to his way of thinking, the greater portion of the pleasure derivable from riding lies in the power of vision. Yet here are shown, not one, but five youths, all deprived of the priceless gift of sight, and all tremendously happy. One of them, who can be seen in the centre of the rear seat, is the famous Tommy Stringer, who is not simply blind, but deaf and dumb as well, but who has been taught many things by means of an ingenious sign language, and is fully as

well accomplished as any other little lad of his age. The party was photographed in Boston just as it was being taken to the Mechanics Building to "see" the automobile show, last week, and the sight of a carload of people, only one of whom is able to see the road and his surroundings, is one not easily to be forgotten. At the show, the boys took the liveliest interest imaginable in all they "saw"—through the aid of their companions—and showed by their questions that they were not simply interested and delighted, but that they had a very good degree of comprehension of the mechanisms of the cars, and how and why they are built as they are.

The Welch-Estberg Co., of Milwaukee, Wis., has purchased the seventy-five-foot lot on Grand avenue, adjoining the Auer estate, for \$45,000. The additional purchase will give the company 125 feet on the avenue by 150 feet deep. One of the largest garages in the West will be erected, work upon it already having commenced.

BOSTON'S BANNER SHOW

Attendance Big Despite Blizzard—Figures that Show Growth and Prosperity.

Boston's big show that opened with such an unprecedented rush of humanity, closed on Saturday night lost with a rush and crush of the same proportions, and despite far

will be very much in evidence on the highways and byways during the coming season. Altogether, no less than 306 vehicles were staged, in which the gasoline class naturally predominated. In fact, the latter alone far outnumbered last year's total, which was but 186 vehicles as against 260 gasoline cars this year. The latter were divided into, 122 touring cars, 49 runabouts, 23 limousines, 9 commercial vehicles and

commercial vehicles, a gain of fourteen over last year. The steamers were divided into, eight touring cars, six runabouts, five limousines, one racing car and one chassis, the total being the same as last year's showing of this class.

Even Thursday's blizzard, leaving the streets a veritable morass of chocolate colored slush, mud and water, could not combine to hamper the demonstrating forces which were out in full force through it all and promptly the next morning, as will be evident from the accompanying photographs of the line-up outside Mechanics' Building.

No Sales, but Lots of Expense.

Friedberger & Hecht, 1843 Broadway, New York City, have learned that not everyone can make a fortune at the automobile business. Justice Greenbaum, of the Supreme Court, this week appointed William Goodrich temporary receiver for the firm, in a suit brought by Walter M. Friedberger against Rupert Hecht for a dissolution of the partnership and an accounting. The firm began business on October 5, 1905, but gave up the struggle on December 26, Friedberger testifying that in that time their expenses were \$500 a month, while they did not make a sale.



more unfavorable weather conditions. In addition to the fact that the last day proved an incentive to procrastinating enthusiasts Saturday was Evacuation Day, which is a holiday at the Hub, and both these causes contributed to swell the closing day attendance to almost a record crowd.

Some idea of the vast strides made by the Boston show during the past three years may be gained from a comparison of the total attendance for the first four days of the week since 1904. In that year but 9,900 people passed in the doors in four days; one year later no less than 102,000 admissions were taken in the same time and this year the number soared 114,000—an increase of almost twenty fold. Opening or "paper" night rolled up the unprecedented total of 52,000 this year as against 47,000 last year and each day thereafter showed substantial increases up to Wednesday, which broke even with last year at 23,000, this being a day on which special excursions are run from various parts of northern New England to the show. Thursday's blizzard cut down the attendance on that day, but had little after effect as Friday's attendance was the same as Wednesday's. This jumped to 40,000 on closing day, which brought the official figures for the week over 200,000.

Never has New England seen such an automobile show before and its marked effect on the census of cars "down east"



DEMONSTRATING CARS OUTSIDE THE SHOW BUILDING.

two racing cars, besides 55 exhibition chassis. Last year's total was but 165 gasoline cars, showing a gain in every class but the limousine, which dropped behind one. In the electric class this year the total has increased to a point where with the addition of the commercial vehicles, makes it rank next in numbers to the gasoline class—a distinction held by steam last year. The electrics were divided into one touring car, twelve runabouts, five limousines and seven

Gasoline Car at Steam Works.

Desiring to acquire a means of conveyance for visitors to and from its big plant, the Baldwin Locomotive Works in Philadelphia, has demonstrated that it is not prejudiced in favor of the power with which it has had so many years of experience by investing in a gasoline driven touring car. A Winton model K has been purchased and installed in this service, which it is performing satisfactorily.

STRENUOUS SPORT IN SNOW

Bets at Boston Show Result in a Long Run and Short Rushes Uphill.

One of the features incident to the closing of the Boston show was the remarkable performance of a thirty-six horsepower four-cylinder Maxwell touring car, one of the first to be turned out by the factory. The car was driven from Tarrytown to Boston on Friday and Saturday and the following day made a hill climbing performance that surprised the few hundred who were out on Parker hill to witness it.

Two feet of snow covered the surface and below this there was almost eight inches of soft mud. Starting from Springfield at 7:30 a. m. the next morning, Kelsey reached Boston at 3:30 p. m. Saturday, being further delayed by tire troubles, and he ran from Worcester to the city of brown bread and beans on a flat tire. There it was found that the two anti-skid chains were worn nearly through.

On Sunday morning the hill climbing contest took place. Parker hill was selected for the test and it was covered with a foot of snow that had not been trampled down, and at places deep drifts blockaded the passageway. Added to this the fact that

scored by the Rambler were respectively 1:30½ and 1:26½, and of its opponent, 1:31 and 1:28.

Gatling Guns to Protect Gold Car.

In order to insure the safe passage of gold bullion from his mines in Mexico—that is, to protect it from lurking highway-men, Torrance M. Hart, of Cambridge, Mass., who has extensive interests in Mexico, has placed an order with the E. R. Thomas Motor Co., of Buffalo, N. Y., for one of the most unique cars for practical use ever built in this country. The chassis and larger portion of the body are to be like the regular stock model, but there the



MAXWELL DELEGATION FROM PAWTUCKET, R. I., THAT VISITED BOSTON SHOW.

In the course of the show week, E. P. Blake, who has the Jackson agency in Boston, came to the conclusion that there was no four-cylinder American car costing less than \$3,000 that could show its license plate to the four-cylinder, 40-45 horsepower Jackson in a hill climbing contest. So sure of this was he that he wagered \$500, that no car could beat the Jackson two heats out of three. The money was to be donated to charity. C. W. Kelsey took exceptions to the other agent's boasts and said that he had a car in the factory at Tarrytown that could show the way to Jackson and to make the contest more interesting offered to wager an additional half-thousand that he could make the trip from Tarrytown to Boston in less than twenty-four hours.

Kelsey started on Friday morning at about eleven o'clock from the Maxwell-Briscoe factory at Tarrytown. Tire troubles delayed him and he did not reach Springfield until 10:45 p. m., where he remained overnight. The roads from Hartford to Springfield were almost impassible.

the hill was one-third of a mile long and averaged a grade of 20%, and it will be seen that it was no easy task that the cars were set to accomplish. Driver Lee, on the Jackson, lost the toss and was sent up first. He negotiated the incline in 1:38. Then followed the Maxwell, driven by C. W. Kelsey, which was timed at 1:30½. The Jackson made a second attempt, but the driver stalled it in a snowbank near the top. Slightly better time was made by the Maxwell on the second trial, it thereby winning the contest, though losing the first wager. During the climb both cars carried three members of the Boston Chronograph club, who acted as official timers. Following the main contest, a Maxwell "Speedster" went up the hill on the high gear carrying four passengers.

Another match climb was between H. E. Wilson, 35 horsepower Rambler, and A. R. Bangs, 20 horsepower Franklin, the former winning both heats. Better time was made in this event as the snow had become packed and gave better traction. The times

resemblance ends. Armor plate will be used to protect the working parts, front seats and tonneau, and to provide safety for the passengers. A place will be provided in the tonneau for carrying gold and either one or two Gatling guns will be mounted in the front and rear compartments of the body. Mr. Hart has more than once suffered from attacks by the Yaquis, whose habit it is to swoop down upon the gold trains in the narrow passes, and he figures that the only way to transport gold safely is by means of an armored automobile.

Syracuse, N. Y., will have a motor stage line on April 15th, when the C. W. Gray Automobile Omnibus Co. begin operations. The company will run cars on all streets not touched by local trolley lines.

R. F. Monroe, of Pontiac, Mich., has purchased the plant of the Jackson Body Co., at Jackson. In the future automobile bodies only will be made.



To secure funds, the Ladies' Aid Society of McKinley Hospital, Trenton, N. J., are planning an "overland automobile tour" for the first week in May.

The Rutherford Automobile and Motor Club has been formed by automobile owners, of which there are about forty in Rutherford, N. J. The club is agitating the question of placing signs at all cross roads in and near the town.

Several Pleasantville (N. J.) boys have learned that it does not pay to meddle with property belonging to others. For mutilating a sign of the Atlantic Automobile Association, Ralph Sanders was fined \$7.50, and Schuyler Adams and Herman Risley, \$3.75 each.

The Indianapolis (Ind.) automobile dealers who had on the tapis a project for an inter-club road race between Terre Haute and Indianapolis, have just "discovered" that Indiana has on its statute books a State automobile law. Consequently the project will be abandoned.

Sanction has been granted for the proposed hill climbing contest to be held up the Wilkes-Barre (Pa.) mountain, on May 10, the first day of the city's centennial exhibition. The distance is two and a half miles, and in some places the grade is as steep as 26 per cent. Classes will be provided for all kinds of cars.

Hereafter automobiles will not be permitted to run on the streets of Eden—not the garden, but a little village up in Maine. By a vote of 98 to 75 the citizens of that place have decided that motor cars will not be allowed the use of the village streets. The reason given is that they ran over too many hens.

Californians in general and Los Angeli-cans in particular, have re-christened "Whistling Billy" White the "Rainmaker." The race meet scheduled for Sunday, the 12th inst., at Agricultural Park, Los Angeles, again had to be called off on account of rain. Almost every time Bert Dingley and the White steam car have been advertised to go for records, Jupiter Pluvius has interfered.

Commodore Frederick G. Bourne, of the New York Yacht Club, has planned to build a track on his Indian Neck estate at Oakdale, L. I. Indeed, it already is under construction, the ground having been plowed twenty-two yards wide and five miles long. The course is double width, the two tracks running parallel with each other, slightly diverging at the two extreme north and south ends to allow turns.

President Woodrow Wilson, of Princeton, is responsible for the statement that "nothing has spread socialistic feeling in this country more than the use of the automobile. To the countryman they are a picture of the arrogance of wealth, with all its independence and carelessness." This was in the course of an address, so it is to be presumed he went further and said more on the subject, but history recordeth not what it was.

For "shocking cruelty" to a horse, which the magistrate described as "thin, shrunken and starved," its owner, who was a justice of the peace, was fined \$25. For not stopping at a policeman's signal and having his lamps unlighted, a motorist was mulcted to the tune of \$90. The heinous nature of the latter offense is self evident. This is an instructive instance of the comparative gravity of various misdemeanors as viewed from the British standpoint.

Mayor Fisher, the Wesleyan University economics professor, elected mayor of Middletown, Conn., wants to make a Coney Island of that town. To stop automobile speeding, he announces, he will have the street commissioner build a series of "bump the bumps" on the streets. Mayor Fisher is more ambitious than the authorities of Chatham, N. J., and Glencoe, Ill., however, for he proposes to build "bumps" in some places that will shunt cars off into the Connecticut river if they go faster than a walk.

"Auto Jim" Quinn, of Leicester, Mass., is in danger of losing his reputation as a terror to automobilists, for a new rival has appeared on the scene. He is Martin J. Wright, the newly elected constable of Upton, Mass. Through the convenient columns of the Boston dailies he has been permitted to tell the terrible things that will happen to motorists who pass through Upton faster than the law allows. Wright has a cute little imitation-leather two by twice picture box with which he hopes to take the pictures of license numbers.

The city of Fitchburg, Mass., has settled its automobile suit out of court, the sum of \$45 being paid to the Harrington Auto Station. The automobile company originally was the defendant in the case. On April 20, last year, one of its cars jumped at right angles while going down a street and pushed a hydrant over. The city authorities immediately attached the car for damages to the hydrant. The automobile company, however, brought a counter-suit, proving that a hole in the street caused the accident and it terminated by the city paying the cost of repairs to the machine.

Battle Creek, Mich., boasts of a washer-woman automobilist, in the person of Mrs. Christine Huber. According to the tale, Mrs. Huber does from eighteen to twenty-four family washings a week, receiving therefor about \$25. For eighteen years she has taken in washing, caring for five children and giving them a liberal education. She owns the house in which she lives, another house which she rents and a farm.

Besides this, she has laid away a little over \$1,000 which she has just invested in an automobile. Whether she uses the car for business purposes or pleasure is not stated.

"Believing that one of the most important functions of the club is to supply its members with reliable touring information," to employ the language of the announcement, the governors of the Automobile Club of America have appointed a clerk of the Runs and Tours Committee to take charge of this department of the club's work; he will devote his entire time to the preparation and distribution of information concerning routes, hotels, repair stations, freight rates, licenses and registrations, customs formalities, and all the necessary data for touring both in the United States and Europe.

An incident that savors strongly of typical German justice, but which, on the other hand, does not accord well with the reputed extent of the royal prerogative of the great war lord who makes the earth tremble when he goes abroad, is the arrest of one of the Kaiser's chauffeurs for exceeding the speed limit and causing an accident while so doing. Although the man was merely carrying out his orders, he was summarily dismissed, and to add to the agony, was heavily fined by the authorities, who, unable to go "higher up," came down heavily upon the hired man. But royalty considered dismissal sufficient punishment and had the fine reduced.

The Chicago Automobile Club has definitely decided to build its new clubhouse at 15 to 19 Plymouth Place, which it has leased for ninety-nine years, and the adjoining lot about to be acquired by the club, in all 96x93 feet. The building will probably be four stories, 96x93 feet, in colonial style of brick and stone, and is estimated to cost \$150,000, complete. Work of razing the buildings on the present site will begin about May 1. To provide the funds necessary to erect the clubhouse the club will organize a stock company under the title of the Chicago Automobile Club Auxiliary Association, and capitalized at \$125,000. Shares are to be sold at \$100 each.

Not to be outdone by Thomas Higginbotham, the Waukegan man who used his automobile to earn an honest penny by sharpening skates, Richard Morrow, of the same place, has gone him one better by using his car to clean the snow from his large property in the Illinois town. After the recent heavy fall of snow, Morrow, who is president of the Waukegan Automobile Club, attached a heavy plow to the rear of his automobile and started up and down his walk, also making paths in the yard. While his neighbors were perspiring shoveling by the old method, Morrow smiled at them from the vantage seat in the car. Now his neighbors are thinking of buying automobiles, if for nothing but the purpose of cleaning snow off the sidewalks.

Los Angeles Plays a Low-Down Trick.

Los Angeles, Cal., now welcomes the stranger within its gates in a manner calculated to discourage future visits.

"We hereby notify you that one automobile, number 909, belonging to you, has been assessed at a valuation of \$2,800 and the tax upon the same amounting to \$33.60 is hereby demanded. You are hereby notified that this machine must not be removed unless such tax is paid."

This was the wording of an official notice from the city tax assessor of Los Angeles handed to J. H. Ordway, a resident of Boston, upon going to a garage in the former city to take out his car. And the same fate met E. R. Thomas, the Buffalo manufacturer, a short time later. Both gentlemen gave expression to sentiments more forcible than elegant, but as the assessor was on the spot, and not only threatened the garage keeper with arrest if he permitted the cars to be removed and threatened the owners with confiscation of their property if they ran the cars without having paid the tax, the irate victims were compelled to submit to this form of legalized robbery with as good grace as they could muster.

Mr. Thomas has retained H. C. Brown, a resident attorney representing the local automobile club, to fight the case and will carry it to the Supreme Court of California if necessary. Other visiting motorists received the same notice to pay up and then went and did likewise by calling the law to their aid.

Italians Plan Ambitious Program.

Italy has decided to not alone have her fill of racing events during the coming season, a formidable list with substantial prizes already being established, but has also come to the conclusion that she will open the European racing season by adding still another to be run off in connection with the exposition to be held at Milan. This takes the form of an ambitious touring contest which will start on May 14th and for which prizes in excess of \$30,000 have been put up, including a gold cup given by the city of Milan, a trophy put up by the King himself, and last, but not least, some substantial cash prizes for the winning drivers.

The event will be run under the auspices of the Automobile Club of Milan and will be divided into three classes. First for vehicles the chassis price of which is \$2,000 or over, second, light cars the chassis price of which is between \$1,000 and \$2,000, and third, runabouts costing under \$1,000 complete. It will be noticed that this is practically the only European event in which the runabout has appeared in connection with higher priced cars. Nor will the event be a race pure and simple, for while victory will go to the car in each class which attains the best average speed, the maximum of 25 miles an hour for the first class, 21 miles an hour for the second class, and 16

miles an hour for the third class, must not be exceeded. A minimum average speed is likewise set for each day and failure to make this will result in the disqualification of the car, so that it will be apparent that the event partakes more of the nature of a reliability trial, which will be conducted throughout under official observation.

For the first class cars, the itinerary covers 11 days and will take the tourists through some of the most beautiful parts of Italy, starting from Brescia and finishing at Milan. Cars of the second class will start two days later than the first or on May 16th, and the third on May 18th, the itinerary for both the latter only covering nine days and starting from Milan as well as finishing there. The winning car of the first class will receive \$5,000 and the Coupe d'Or, and the second will receive the King's trophy and \$1,500, besides which a number of other prizes are hung up.

Atlantic City's Riot of Races.

If sufficient number of cars to fill out the long program that has been arranged by the Atlantic City (N. J.) Automobile Club for its beach carnival, April 26, 27 and 28, compete in the events, there ought to be plenty of sport. It will be the largest race meet that the New Jersey resort has yet attempted. Here is the program, the events, unless so specified, being at one mile:

Record trials, steam. Record trials, gasoline cars, 1,432 to 2,204 pounds. Record trials, gasoline cars, 881 to 1,432 pounds. Record trials, gasoline cars, 551 to 881 pounds. Free-for-all, (flying start) championship. All gasoline cars (standing start) championship. Heavyweight gasoline cars (1,432 to 2,204 pounds) championship. Middleweight cars (four cylinders) championship. Touring cars, 40 horsepower or less; regular equipment; amateurs to drive; to carry five passengers. Air-cooled touring cars; regular equipment; to carry five passengers. Price handicap, for four-cylinder touring cars; regular equipment; to carry five passengers; \$4,000 cars on scratch; handicap of one second for each \$100 less in price. Price handicap, for two-cylinder touring cars; regular equipment; carry five passengers; \$1,500 car on scratch; handicap of two seconds for each \$100 less in price. For six-cylinder touring cars; regular equipment; carry five passengers. Handicap (one-minute class) for cars that establish marks better than one minute on the beach. Touring cars (gasoline) selling at \$3,500 or less; regular equipment; carry five passengers. Touring cars (gasoline) selling at \$2,500 or less; regular equipment; carry five passengers. Touring cars (gasoline) selling at \$1,500 or less; regular equipment; carry five passengers. Runabouts (gasoline) selling at \$1,000 or less; regular equipment; carry five passengers. Quarter-mile touring cars (open to all) on reverse gear; regular equipment; carry five passengers.

Appearances that are Deceitful.

That things are not what they seem in motordom as elsewhere was brought home to a young Pennsylvanian recently. He is the agent of various American cars and evidently judges of their capacity by their looks. He was riding down Philadelphia's main street not long ago in a friend's car, when a dirty looking mechanic in a jerky little car of uncertain age and antecedents pulled up alongside. From its outward semblance the little machine gave evidence of neither speed nor endurance, in spite of which it appeared to have no difficulty in keeping abreast of its larger rival. This did not suit the man who banked on looks too heavily at all, so he remarked to his companion: "I wonder if that fellow thinks he can keep up with us. What do you say if we give him a run?" "Well, perhaps he can," replied the friend who was driving. He knew the fellow and he knew the machine and realized full well what it could do in the way of speeding, though having no special qualities beyond that. But he opened her up just to please his passenger, and the dinky little outfit went to the rear as if it were anchored. The curious one smiled with satisfaction. He glanced over at his companion as the car flew along. "Where is the little fellow now?" he asked. "There he goes," was the reply, as a streak shot by and soon resolved itself into a rapidly fading ball of dust in the distance. "You can't always judge an automobile by the color of its paint."

Germany to Tax all Tourists.

Motor car taxation on a horsepower basis has finally been decided upon in Germany and a system of charges worked out according to a quadruple classification as follows: Class B, cars of 6 horsepower, \$6.25 per annum; class C, cars of 6 to 10 horsepower, \$12.50 per annum; class D, cars of 10 to 20 horsepower, \$25.00; and class E, cars of more than 20 horsepower, \$37.50 per annum. In addition to this, there will be an additional tax of fifty cents per horsepower on cars of class B, and seventy-five cents on class C, while cars coming under the two remaining classifications will be charged at the rates of \$1.25 and \$1.50 per horsepower. Tourists taking their own cars into the country will be charged seventy-five cents for a three days' sojourn; \$3.75 for a stay of five days, and if the visit be prolonged or for thirty days, the cost will be \$10.00.

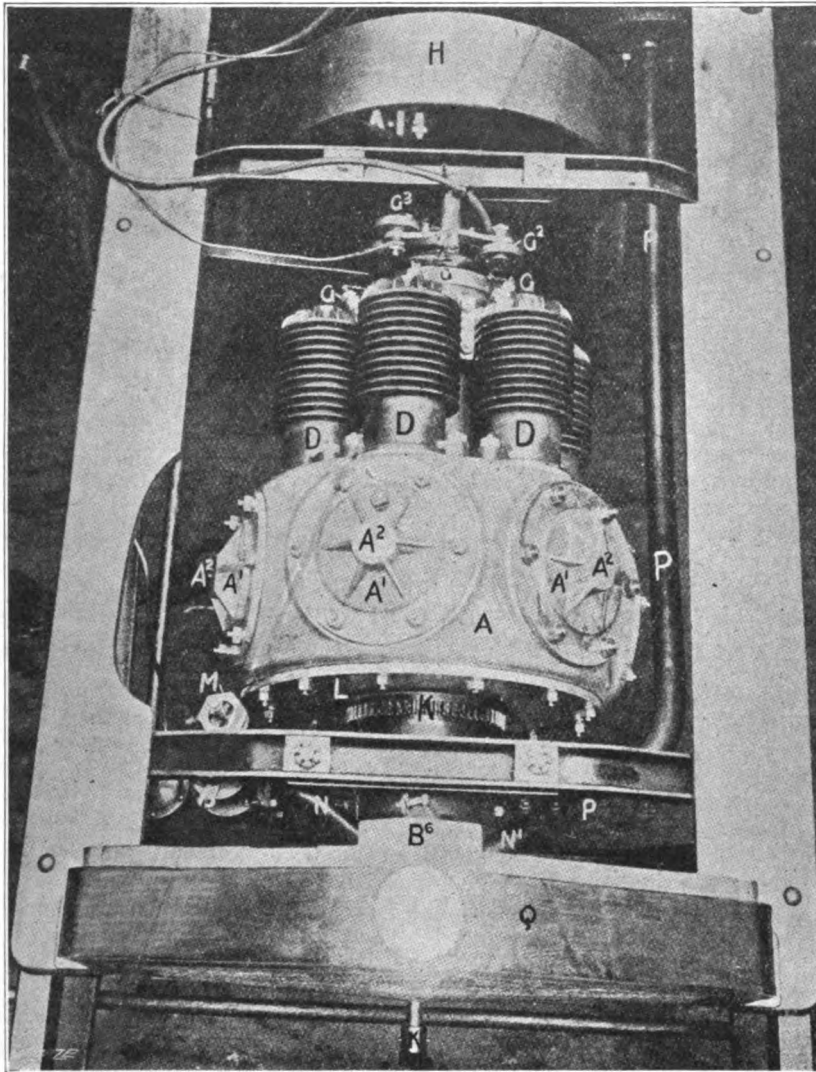
Motor Cars Ordered Mobilized.

Germany has become aroused to the value of the motor car in the service of war, and consequently all owners of motor cars in Munich have received an order commanding their presence at the Bavarian Ministry of War for mobilization purposes. The cars must be in the hands of good and efficient drivers, must be in good running condition, and must be furnished with sufficient supplies for a journey of about one hundred miles, says the order.

HAS ROTATING CYLINDERS

Striking Application of that Near-Turbine Idea that has Appeared Abroad.

Although the turbine motor of the internal combustion type seems not to be in the immediate prospect for various reasons which militate strongly against its development, yet the designers are constantly striving to approximate it as closely as possible by various means.



In the common type of internal combustion motor the number of working cylinders is being increased from year to year, thus by increasing the number of impulses per cycle of the whole machine, approaching the conditions which would exist in the ideal rotary motor, while, on the other hand, certain radical constructors are bringing out from time to time motors which they term rotary, and which by other means gain something toward the desired end. Of this type the motors of the so-called revolving cylinder class are an example, and one which is now being considered more seriously every year. One of the newest of these is an English invention which has just been brought out under the name

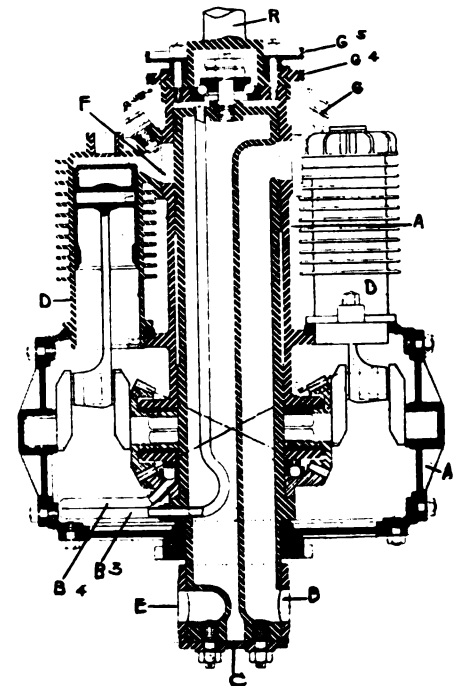
of the Lamplough Horizontal Rotary, and in which the cylinders rotate about a central axis which, contrary to precedent, is parallel to the axes of the cylinders themselves.

As a result of this somewhat radical method of construction, the motor presents as a whole a very compact appearance, being quite self-contained, besides being very efficiently air-cooled, owing to the fact that the cylinders are constantly cutting through the air whenever the motor is in action.

Six cylinders are used, mounted about a hollow central drum or axis and which is made a running fit over an inner drum which contains two chambers serving as inlet and exhaust passages. The cylinders themselves communicate with these chambers through ports which are opened and closed in proper order by the rotation of the cylinder group about the inner drum. A boss affixed to the outer drum is made to form six bearings radial to the main axis of the motor, while the outer casing, also integral with it, has six corresponding bearings, the six pairs of bearings thus mounting the crankshafts of the cylinders which are radial and equally disposed about the motor. Affixed to the individual crank-

shafts, are bevel pinions which mesh with a master gear mounted upon the inner drum, thus communicating the motion of the shafts to the casing or motor proper. In this way, while the action of the pistons is longitudinal to the motor itself, this motion is transformed by the bevel sets to a rotary one about the main axis, and a speed reduction obtained by the same token which serves to secure a comparatively low rate of speed in the driving shaft although the individual pistons are running at a fairly high rate.

The method of distribution can be understood by reference to the sectional illustration here shown, in which the manner of mounting the cylinders D on the outer casing A and the drum, the whole mass ro-



tating about the inner drum C, is clearly shown, as well as the crank shafts and the bevel pinions which serve in driving. Within the drum C are two passages, B and E, each communicating with a port at the head end and connected at the outer end, with the carburetter, and the other with the exhaust pipe P. A port F in each of the cylinders is made to register with the passages at the proper time by the rotation of the engine, thus securing the inlet and exhaust without the use of valves of any sort. The remainder of the space within the inner drum C is taken up by an internal water jacket which serves to cool the exhaust and inlet, and to keep the bearings of the engine proper at an equable working temperature.

Two insulated commutator rings are mounted on an extension of the outer drum and serve to convey the ignition current, both primary and secondary, to the ground and to the spark plugs, the one being grounded at proper intervals, while the other G2, passes over contacts on the ring

G4, which are connected to the plugs by short leads. The rings being stationary, the timing of the ignition is controlled in the usual way by the operator. Lubrication of the bearings is accomplished by means of the centrifugal force of the rotating machine. Two small bore pipes, B2 and B4, are led into the case A, and terminate near its periphery in bends, where they collect the oil which is awash there in the manner common to the splash system, and conduct it to the two main bearings, one at either end of the drums. The pistons and connecting rods, of course, obtain their supply in the usual manner from the case.

Fixed to the extension of the outer drum which also carries the distributor, is a coupling by which the shaft R is connected to the motor and the power distributed. At the crank end, a gear K is fastened to the case, which is meshed by a pinion on a smaller shaft, to which a starting crank is affixed.

In the principle view of the motor, it is shown mounted in the frame of the car, the points of support being at the two arches which span the frame from side to side. The carburetter is shown at M, the inlet and exhaust piping being seen at N and N', the latter leading to the pipe P, which carries the exhaust gases to the muffler. The radiator which cools the circulating water used in the inner drum is shown at Q, and the flywheel clutch at H.

Departure in Exhaust Pipes.

To obviate the much exaggerated nuisance of the blowing out of the exhaust gases from motor cars when running through traffic or standing with the motors running, one of the foreign makers has just adopted a triple exhaust pipe leading from the muffler and governed by a three-way cock, controlled by the driver. By this means, he is enabled to direct the exhaust from either side of the machine, or at the rear, or even to deliver it from all three points simultaneously. Thus, when standing at a curb, the gasses may be blown into the centre of the street, or when checked by traffic at a crossing, they may be delivered at both sides, and the fumes thus directed away from following vehicles. Despite the fact that the scheme adds one more to the already overfull list of complexities in the gasoline machine, it has certain commendable features, and is worthy of consideration.

Switzerland Levies New Duties.

A new customs tariff has just been fixed for all motor cars entering Switzerland which amounts to forty francs per hundred kilos. for all cars not upholstered, or something like three cents and a half per pound. For cars which are upholstered, the rate is sixty francs per hundred kilos., or about five and a half cents per pound, which would seem to indicate a desire to boom the trimming business in that small but very self-important section of the globe.

INCREASE OF COMPRESSION

Simplest Way in Which to Obtain it—How Clearance May be Ascertained.

Despite the tremendous advance that has been brought about in the efficiency of the automobile motor during the past few years the causes that have contributed to it are not such as to preclude their application to old motors with a considerable degree of success. Improvement has been found to center chiefly in the carburetter, ignition and valve timing, and compression.

The addition of accessories of improved type, and in the case of the carburetter the elimination of sharp bends in the manifold, presents no difficulty whatever, nor for that matter does the betterment of valve timing, a change to mechanical operation or even an enlargement of their area where the casting permits it, but improvement of the compression requires a little study. The difference between the pressure per square inch in the old motors and their modern successors is quite marked, which accounts for the greatly diminished power of the former even though of the same dimensions and designed to run at the same speed. Within certain well defined limits an increase in compression is attained by a corresponding increase in the power and a reduction in the amount of fuel used. These restrictions are marked by the pressure at which spontaneous ignition takes place and at which it is possible to start the motor by hand.

The degree of compression naturally is dependent upon what is known as the clearance of the piston—that is, the space between the top of the piston and the cylinder head at the upward extreme of the stroke. And from this it follows that the only practical way to bring about an increase in this essential without resorting to a great deal of expense and trouble is to reduce this clearance by increasing the size, either of the piston or the cylinder head, or by making the stroke longer. New pistons would naturally not be justified and the same is likewise the case with new connecting rods where it is desired to carry out the improvement by lengthening the stroke, so that the expedients readily available are narrowed down to a decrease in the clearance by affixing a plate, preferably of cast iron, either to the top of the piston or the inside of the cylinder head. Either may be carried out with a resulting advantage, but the latter method will be apt to destroy the balance of the motor unless the other parts are altered to correspond. Just how much the clearance should be reduced to give the best results presents a problem that may be solved in various ways. The amount provided in a modern motor of the same dimensions and design may be ascertained and used as a standard, or the original amount of clearance may be taken, the desired reduction necessary to bring about

the increase in compression calculated and a pattern representing the cubical content of the space reduction made.

A ready method of ascertaining the amount of clearance in the motor consists of filling the chamber with water through the ignition plug hole when both valves are tightly closed and the piston is at the extreme point of its travel. This may be done from a rectangular vessel, the cubical contents of which may easily be calculated. Then the displacement of the piston in cubic inches should be calculated and with these two factors known, the clearance percentage may be readily figured regardless of the irregularity of the port passages. The plate made to reduce this clearance should under no circumstances be permitted to obstruct any of these port openings to the valves, and if this be the case as originally designed it must be chamfered away at the parts adjacent to the ports.

Separate Shows for Commercial Cars.

One of those developments in the show situation which from its very nature could not be postponed much longer, has taken form in the resolution of the representative body of the English automobile trade—The society of Motor Manufacturers and Traders—to henceforth make exhibitions of purely pleasure cars and commercial vehicles, things apart. It has become increasingly apparent, particularly within the past two years, that one or the other of these elements must sooner or later become supreme where public exhibitions are concerned and from the tremendous preponderance of the pleasure type from the outset, it was apparent that there could be but one solution—the final exemption of all available space by the latter. It has been evident for some time past that buildings of requisite size to shelter this branch alone are not extant so there was but the single alternative of creating class shows.

This the British industry has decided to do by holding a show for pleasure cars solely at Olympia during November, as last year, and a second for commercial vehicles, machinery and the like in the following April. The great increase in the number of firms devoting their attention wholly to delivery wagons, stages and heavy trucks has become so large that there will be no difficulty in assembling sufficient exhibitors to fill the space as completely as is at present the case where both are combined. What is of equal importance, the aggregation will hold as much interest for the visitor and will afford a far better opportunity to investigate and compare the merits of the various systems than is possible under prevailing conditions. It is something that has to come sooner or later in this country and the extremely rapid development of the past year as well as the present unsettled state of the New York show question make it likely that next winter may see it put in practice here as well.

MOTOR FREIGHT LINES

Important Part they Play in Africa and Madagascar—Roads Built for them.

As a cheaply installed and economically operated rival to the steam railroad, the automobile appears to have met with a more widespread acceptance for freighting in the undeveloped parts of Africa and Madagascar than anywhere else in the world. There are already some 14,000 miles of railroad in operation, but improved transportation in the hotter parts of the Continent is said to be advancing too slowly for commercial needs. Something is wanted to take the place of the slow and costly system of transporting freight on human carriers and the automobile is accordingly being introduced both as a freight and passenger carrier.

The experiment is succeeding better in some regions than others. It is most successful in Madagascar. It has been introduced only in the past few months in the Katanga Province of the Upper Congo and promises well there. It has been almost a failure in the French colony of the Western Soudan for reasons that should have been obvious from the first; and it has been anything but a brilliant success in German Southwest Africa.

Automobile transportation in a commercial sense can be only a temporary expedient, for cheap transportation cannot be secured by dividing freight, often of small value in proportion to bulk and weight, into small automobile loads. It is as true in Africa as elsewhere that cheap freight carriage can be secured only by the concentration of a large bulk of merchandise in large loads moved by the most powerful means of traction.

The trouble with the automobile in the French Soudan is that the authorities have not been willing to expend the large sums required for good roads, and in the tropics where the winter rains are often of extreme violence, poor roads are torn to pieces in a day and cannot be made usable again for automobiles without great loss of time and large expense. So the two automobile roads in the French Soudan have been nothing but impassable quagmire for months at a time.

It has been proved in Madagascar and Katanga that good roads can be built and kept in order with little or no interruption. The automobile route from the east coast of Madagascar to the capital, Antananarivo, about 120 miles inland, has revolutionized transportation. As late as 1901 the cost of moving freight between the sea and the capital was \$75 per ton. The new road, completed in 1902, was finely built and well drained. For the first year wagons hauled by men superseded portage on the backs of men, and now automobiles have largely taken the place of wagons, and freight rates have been reduced three-fourths. A daily service of automobiles for passengers and

freight is maintained between the Indian Ocean and Antananarivo. The people are happy over the great change, but the automobile will resign in favor of the railroad in 1908 if the line now started is completed in contract time.

An equally remarkable development is in progress in the heart of Africa, where automobile freight wagons are now running over the savannas and through the forests. From Stanley Pool there is steamboat transportation for about 1,000 miles up the Congo, the Kasai, and Sankuru Rivers to the head of navigation on the Sankuru, at the western edge of Katanga Province. Katanga is one of the newest parts of the Congo State, but it is rich in rubber, minerals and agricultural products.

It was desired to provide better means of transport than human porters across the province from the last steamboat landing on the Sankuru to the foot of Lake Mweru, where one of the finest stations in the State has been developed. The distance in a straight line is about 400 miles, and for nearly half the way navigable waters may be utilized.

It was decided to fill in the gaps between these rivers with automobile roads, and this work is now in progress. At last accounts fifty miles of road had been completed to the first navigable waterway leading in the desired direction. Bridges have been thrown across rivers; a rock-ballasted road with perfect drainage has been built in the best European manner, and the automobile service is in operation. The prospect of complete success is so promising that the second section of the road is being pushed forward, and another and more northerly road has been started toward a freight collecting and distributing centre, where it is proposed to keep parties of porters to carry the auto freightage in various directions.

To Bring Garden Truck to Market.

As a result of a series of conferences between fruit growers in the South of England and a group of capitalists interested in the promotion of motor transportation, a scheme has taken root whereby a regular service of motor wagons will soon be organized to daily carry the products of the fruit growing districts along the South coast to the London markets. At first, but a single machine will be used, which will leave Worthington every evening at about six o'clock, reaching London in season for the early morning marketing. If this trial venture is at all successful, it is planned to put on a more complete service as soon as circumstances seem to warrant it. It is planned to effect a saving of something like \$2.00 per ton on haulage, over the costs of transportation by rail. The idea is one of great promise and the result will be awaited with interest by hundreds of market gardeners and fruit growers, the world over, to whom the chief loss of profit has arisen from the great outlay of time and capital involved in marketing their crops.

ALUMINUM BRONZING

Methods and Materials that Produce the Best Results in Obtaining that Finish.

"The big and smart looking touring cars, painted aluminum bronze, have a military shimmer to them, along with a gaiety of finish and effect that is hardly surpassed by any other sort of finish, and if the painting is done properly, with due regard given to the durable upbuilding of the foundation coats, the work is sure to prove satisfactory to all concerned," says the Carriage Monthly.

"Prime the body with a first coat made of raw linseed oil, three parts; turpentine, one part; coach japan, one-half gill to the quart. Stain this coat with keg white lead. Apply with an oval bristle brush, and work the primer well into the wood. Reduce the oil for the next coat to one part oil to three parts turpentine, reducing the quantity of japan by one-half. Increase the proportion of white keg lead, using the lead alone without any shading whatever.

"Brush on a free, smooth, clean coat, laid with the utmost uniformity of film, using, as in the case of the primer, a bristle brush, preferably chisel pointed. Permit the priming coat sixty hours to dry, and the second coat at least forty-eight hours. Then look the job over minutely and putty all defects, however insignificant they may appear. Make this putty $\frac{3}{4}$ dry white lead and $\frac{1}{4}$ best known whiting, mixed to right consistency with equal parts of rubbing varnish and coach japan. This putty will harden in a good drying temperature in twenty-four hours.

"Then apply roughstuff made as follows: Dry white lead, three parts; best known whiting, one part; No. 00 pulverized pumice stone, $\frac{1}{4}$ part; mix to a stiff consistency in $\frac{2}{3}$ elastic rubbing varnish, and $\frac{1}{3}$ gold size japan, the mass then thinned with turpentine to the proper working condition.

"Apply five coats of this roughstuff in as many days, if the surface requires that amount of filler, otherwise limit the coats to four, but use no guide coat, depending upon judgment and skill alone to determine when the surface has been rubbed to a point to finish upon. Upon the color over which it is best to apply the aluminum, equally skilled painters disagree, some sharing the view that a gray, conforming in shade to the aluminum, is the proper ground; but a larger number, we believe, hold to the practice, as above advised, of making the ground a pure white from the basis coat.

"The writer has experimented, and comparatively tested both ways, and is satisfied that the white ground furnishes the finest looking and the most durable finish.

"The white ground apparently reflects its color through the aluminum, giving it a brighter lustre and serving as a counter-acting agency to the discoloring property of the bronze. Aluminum bronze, to a

greater extent than is ordinarily apprehended, partakes of the nature of the ground color, or, at any rate, it is acted upon and influenced by the ground.

"The lighter the ground, therefore, the more certain is the bronze to show a fairer vesture at the time of finishing and of retaining it during its days of service. The bronze, as we have observed it during several years of handling both the leaf and the powder, has the property of absorbing light, and if the ground is as dark as the aluminum, the absorption of light, when the surface is exposed to light, goes on constantly, in which case discoloration presently ensues.

"If, however, the ground is lighter than the aluminum (and white is actually the only lighter ground) the surface is enabled to reflect more light than it absorbs, with the result that any discoloring tendency is arrested, and the surface held to its normal color and lustre for the maximum period.

"The surface having been rubbed out of roughstuff in the usual way, and set aside for several hours to dry out, is now taken in hand and given a light, uniform sand-papery to loosen up any increment of matter. Dust off, and then, with a camel's hair 2½-inch brush, lay on a smooth coat of white made up of one part Florence white and three parts of flake white, from which the oil has been eliminated.

"Or, a better way consists in buying the white, both Florence and flake, ground in Japan. Then add a teaspoonful of pale body varnish to a pint of the semi-paste white, after which thin with turpentine to a consistency suited for application with a camel's hair brush. Lay this on as clean and free from brush marks as you would a coat of color of the ordinary kind.

"Apply two coats, both mixed alike as before described. The surface should now be found sufficiently solid in color to serve as a proper ground for the aluminum. If these coats are kept clean, as they should be, it will not be necessary to do any sand-papery upon either, and, in fact, there should be no sand-papery.

"Various sizes are used, but for the ordinary work, a coat of elastic finishing varnish, applied with a soft, elastic varnish brush, and laid to a uniform depth of coating, makes a good size, but one that, as it approaches the right drying 'tack' must be watched closely, especially if a high or moderately high room temperature prevails, as even elastic varnish has the property of losing its "tackiness" altogether and very suddenly.

"An elastic varnish, however, holds a 'tack' for a long time, and possibly a quicker drying size will serve the purposes of the painter best, in most cases. A comparatively quick, hard drying, rubbing varnish, to which is added a small quantity of fat linseed oil, (twenty parts of varnish to one part oil) furnishes an excellent size.

"This coating dries comparatively rapid, but holds a perceptible 'tack' long after the hand can be brushed lightly over the

surface. Prevailing conditions in the shop, etc., should be diligently observed and acted upon, in order that every point of the work may be taken immediate advantage of.

"Buy a fine grade of the powdered bronze. When the size is right to 'catch' the bronze and hold it clean above the surface, so that the full lustre is obtained, dust on with a triple-thick, 2½-inch camel hair's brush, working rapidly, but surely, making no misses of bronze, although if precautions are taken, the waste will be very slight.

"Under the job that is treated to the bronze bath, spread a sufficient surface of clean paper to catch any surplus bronze which may shower from the work. Having made sure that the surface is densely coated with the bronze, discontinue operations until the following morning, at which time the surface may be lightly rubbed over with a ball of clean cotton batting to give it a certain indescribable polish which it might not otherwise possess. Dust with a camel's hair brush, thus cleaning up surplus bronze.

"In a receptacle kept for the purpose, pour the bronze saved in the paper spread upon the floor. It goes without saying that there should be no 'skipped' places; but in case of such a misfortune, touch lightly with a pencil brush dipped in the size above described, and dust over with fresh bronze in due time.

"Next apply a coat of what is known among the varnish manufacturers as white or colorless rubbing varnish. Rub down in due time, stripe if desired, and apply a second coat of the white rubbing varnish if a high-class finish is called for. Otherwise omit second coat of rubbing. In either case, finish with practically colorless finishing varnish, which, fortunately, may, at the present time, be readily obtained."

Elastic Application of Brakes.

Rather a good plan has been adopted in working out the braking system of one of the well known foreign cars, this season in the placing of a shock absorbing device in the line of application to equalize the effort and at the same time save the hand of the operator and the segment from the road shocks. A small cylinder enclosing a spring is placed in the tension rod just in front of the equalizing lever, so arranged that the effort of applying the brakes is transmitted through it at all times. By this means, the power is always applied in an elastic and well regulated pressure, while all shocks are absorbed by the spring instead of being taken up by the mechanism.

Liquid Air Bobs up Again.

Liquid air has bobbed up again, this time in France, where it is said that the savants of the Academie des Sciences of Paris recently paid a visit to a factory at Bolougne-sur-Seine to witness the manufacture for industrial purposes of oxygen and nitrogen in a liquid state from atmospheric air. One George Claude, is stated as being the inventor of the process, and the usual experi-

ments seem to have been performed with satisfactory results. The price of oxygen for industrial purposes, according to M. Claude, will not exceed four to six mills per cubic metre. And the report naively concludes that it will be possible to use liquid air as a motive power. From which it would appear that the liquid air motor car is about due again. Meanwhile, there are numerous shares of liquid air stock left over from the last period of excitement which doubtless could be bought at a remarkably low figure.

To Repair Cracked Castings.

For repairing cracked cylinder castings, the following compound has been recommended: Sixty parts by weight of finely divided cast-iron borings, sifted and mixed with sal-ammoniac, two parts, and flowers of sulphur, one part, the mass being worked up into a thick paste with water. The outside corners of the crack should be cut out to form a V-shaped groove, and the paste packed into it, and rounded over slightly, it being held in place by a plaster of wood firmly clamped in place. After it has been allowed to stand for about twenty-four hours, the outside may be smoothed off, and coated with a good heat resisting paint. If the crack is a large one and liable to open up under working strains, it is well to hoop the cylinder with bands of iron, which may be drawn up with bolts.

Effect of the Glass Screen.

Ever since the first glass screen was placed on the dashboard of a motor car in order to protect the eyes of the driver from dust and the elements, the prophets of evil have foretold dire results as certainly hanging over the luckless head of the user of so fragile a protection. Strange to say, however, the first accident in any way chargeable to the use of such a screen to be recorded, so far as is known, has only just occurred, and that in England, where the driver of a car who was out in a snow storm mistook a five-barred gate for the highway, owing to the fact that the glass was covered with a thin film of mist, and plunged into it fair and square. Even then, however, the occupants were injured by the effects of the shock rather than by the broken glass.

Extent of Michigan's Industry.

According to a canvass made by the State labor bureaus, over \$18,000,000 is invested in the manufacture of automobiles in Michigan. There are 34 factories in the State, the first of which was established in 1899. The aggregate annual output of the factories was 13,702 cars, an average of 415 for each plant. The statisticians ascertained that 96 per cent. of the automobiles made in Michigan are used for pleasure and that 11 per cent are sold abroad, principally in Great Britain, Russia and Sweden. The total number of wage earners is 3,936 and the annual expenditure in wages for the production of automobiles is \$9,345,110.

NOISE AND THE CAUSES OF IT

Parts of the Motor and Methods of Construction that Create Undesirable Clatter.

Silence, which the proverb holds to be golden, has come to be the most marked feature of a car's performance, and one of the most important from the viewpoint of the public. The heavy gasoline car that swiftly glides along, "silently as an electric," elicits universal admiration from layman and expert alike. Such a vast amount of improvement has been brought about in this respect that the comparisons with electricity and steam are no longer applicable, for many cars of the latter types are now responsible for more noise than is created by the up-to-date gasoline car. That marked difference which characterized various makes of cars in this respect but a few years ago, has disappeared almost entirely, and it is only when a car of ancient vintage and small number of cylinders is passed on the road that the extent of the improvement made becomes apparent. But there are still many engines deficient in one or more of the essentials which go to make for silence, says the Motor Trader. The causes vary from error in design, which may never be removed, to something of a temporary nature such as the derangement of one or more of the moving parts.

Taking what may be termed the inherent sources of noise, there is first, error in design, whether as regards the requisite area at the combustion head for the compression pressure intended, constricted passages about the valves, incorrect profiling of the cams and disproportion between bore and stroke relative to the speed at which it is intended to run the engine; while as regards the same phenomenon due to mechanical derangement so often brought about by defects in the mechanism, such points as the carburetter, lift of inlet valves, where the automatic type is used, defects due to non-working parts, too early ignition due either to a foul condition of the combustion head or failure, whole or partial, of the water circulation system, or defect in the ignition timing gear, and a choked muffler.

As regards the subject of design, the motor has now arrived at that stage where improvement or modification is not to be looked for without effecting a radical departure from accepted ideals. The differences in point of design are now of minor character, and anyone who visits a motor show will testify that except to the eye of a keen, vigilant critic there would seem to be rather a wearying sameness about all present-day motors. Despite this fact, it is none the less true that some engines of apparently similar design are much quieter running than their neighbors. The mechanically-operated inlet valve is not necessarily more or less noisy than the older form of

atmospherically-operated type, neither does the placing of the valves on the one side, or their distribution on either side, account for it; it is to be found in both species. So that at least as regards the water-cooled engine, where more or less ample space for adequate jacket surface about the valve pockets and the diameter of the latter is not restricted, there does not appear to be any particular point one may single out as illustrating error in design. Visitors to the shows may have noticed how, of late, the tendency is to revert to the former practice of putting the valves at the top of the combustion head. There does not appear to be any sufficient data to warrant the belief that the latter is nowadays a better position than the placing of the valves at the side. Such a contention in favor of the inverted position—or Buchet model—had something to recommend it a few years ago when the side pocket system was characterized by more or less tortuous and inadequately jacketed gas passage-ways, and before the value of a direct lead into the combustion chamber was recognized. On the score of noise, it is obvious that the tappet and rocking lever system such as obtain in the inverted valve or Buchet method, is more likely, because of the increased number of rapidly moving parts with necessary small bearing surfaces about the fulcrum pins, to clatter early unless the wearing surfaces have been carefully case-hardened.

For large power motors, where a comparatively large surface caused by overhanging valve pockets would otherwise be a feature, the Buchet system seems desirable, and such engines, being invariably of the expensive sort, the necessary quality of the workmanship can be reasonably expected. It is the inclusion of the feature in cheap motors the user has to watch, and the same applies to the indifferent copies of other well-established mechanical features which serve to embellish outwardly a number of modern cheap motors. This much may be said as summing up on the point of error in design, that a new engine which is noisy at the outset will be, like a roaring horse, incurable. The would-be purchaser should therefore make it his first business to hear the engine running, noting and mentally comparing the noise to what he has heard elsewhere produced from other engines having the same number of cylinders and of similar rated power.

A ready source of noise, and one inherent to many makes, is that caused by the valves clattering on their seats when closing. This is almost always due either to the cams being wrongly profiled at their release side, or to the construction of the tappet mechanism. It may, however, be due to a slight alteration in the relative position of a set of inlet and exhaust cams—as in the case of a multi-cylinder engine—which would be a factor towards distributing the balancing of the running, inasmuch as the firing or exhausting, as the case might be, would affect the one cylinder. Any cause which would effect the reasonably steady running

of a single-cylinder motor would be just as detrimental in the case of a four-cylinder one, but would be more difficult to trace. The importance of the correct profiling of a set of cams cannot be overestimated, and except in the case of expensive motors of the first quality, much is to be said in favor of simplifying the cam shaft of an ordinary type multi-cylinder engine by operating the inlet and exhaust valves by separate cam shafts. Of late, some makers have shortened to modest proportions the length of the tappet guides. This is not altogether commendable, inasmuch as a long sleeve bearing of the sort assists in producing a cushioning effect against a valve's closing abruptly and noisily. Others, again, have abandoned the hardened roller at the base of the tappet and merely "backed off" wedge fashion the meeting side of the tappet. An action so arranged is bound to be a source of clatter, and has no sanction but cheapness to warrant its use. The use of rather coarsely-pitched distribution gear wheels is not conducive to silent running. It is also against the chances of the valve gear being accurately turned to use such a pitch of tooth, and is not warranted on the score of difference in cost. An error apparently negligible as regards one valve—say the exact moment of opening the inlet—is not so as concerns the exhaust, and, as users know, it is not an uncommon experience to find an engine on which the exhaust valve cannot be correctly timed as regards its opening equally with its closing period.

The fitting of springs of unnecessary stoutness, or if the coil be too closely pressed together, are incipient causes of clatter. The object of the spring is merely to ensure a prompt closing of the valve, and to do so it is not necessary to almost pull the head from the stem. To a minor degree, too, whatever is to be said as regards the neatness and simplicity of the Panhard or hooked-in style of spring, it is open to suspicion that such, when of large diameter, may effect an unequal or side strain on the valve spindle, and if not causing it to become warped, will tend to wear the valve seat and spindle guide oval.

A common cause of noise is that where the inlet valve is permitted too large an area of opening. Nothing is to be gained as regards efficiency of power by permitting the inlet valve to open more than 5-32-inch as a maximum; less, even to 3-32-inch, is sufficient on a high speed engine. Then, again, in the case of an automatic inlet more is made of using a fairly stiff spring than is warranted. A comparatively light one is sufficient; it is the degree of lift or area of opening and the prompt closing of the valve at the right moment which count.

Too great a lift of the inlet valve also affects the functions of the carburetter, causing unsteadiness of running at low speed and a disagreeable popping noise at the carburetter. Some carburetters by their construction are prone to be, as it were, asthmatical and work very audibly at all speeds of the engine. This species of noise

is more marked where an extra or auxiliary air valve is fitted, and, again, it is found inherent in others having a piston double or single ported sliding valve of the supposed automatic type, the metallic noise being more pronounced at low engine speed when the piston is constantly being thumped against the mixing chamber base as the speed of the motor fluctuates. In part, too, the style of carburetter may be responsible for metallic-like reverberations caused by the air streams being variously advanced and repelled in synchronous form with the working of the engine. The mounting of such a carburetter on a plinth of wood or an aluminum bracket will often remove this cause. A spring-controlled extra air valve having necessarily a light spring is subject to a degree of fluttering, which is incurable while the style of valve is used; but it might be modified were the valve of composite rubber, similar to the type used up to recent years in ship's circulating water pumps.

Thumping in the engine is another form of noise which may arise from error in the firing, either due to faulty ignition gear details, or pre-ignition attendant upon overheating. The latter cause, in turn, may be due to failure of the pump to circulate the water, or to the presence of some incandescent medium either in the combustion head passage ways, or following on over-lubrication resulting in the depositing of a considerable amount of carbon in the same quarter or on top of the piston head. When the trouble arises from defective ignition mechanism, the phenomenon is more or less constant—that is to say, it starts almost with the first few strokes of the piston. On the other hand, the pre-ignition knock will only develop incidentally to the presence of one or both of the causes latterly mentioned. An easier form of noise trouble to diagnose is that set up by local derangement of some piece of the moving parts, which, like the ignition timing trouble before mentioned, remains constant all the time the engine is running.

Taking the ignition timing trouble first, a very common cause concerns multi-cylinder engines fitted with the low tension or mechanical make and break contact form of firing by magneto. An error of 1-16-inch from the right setting of the trip mechanism actuating the make and break will produce a knock similar to that denoted by a loose flywheel. It is even more necessary to secure a synchronous firing position common to all the cylinders than a fairly equal degree of compression for each, so far as the avoiding of noise on this score is concerned. Anything, therefore, irrespective of the type of ignition used, which causes one or more cylinders to drag on the power or impulse stroke, e. g., wrongly adjusted trembling blade on a coil, irregular contact between the form of wiper and the metal segments on a disc type of make and break, or sluggishness at a high tension current distributor; in fact, any cause to account for irregular firing will disturb

the even balance of the engine's running. Premature firing by incandescence being a self-evident, but usually only temporary, cause of knock, hardly needs reference, except to remark that it is calculated to lead to mechanical derangement if not corrected, inducing hammering on the gudgeon pin, crank pin and shaft bearings, and possibly subsequent fracture at one of these points or distortion of the connecting rod. This leads to the subject of mechanically-caused knock, which, as before remarked, is readily recognized by its more or less permanent character and constant noise at any speed of the engine. Simplicity typified by fewness of working parts is a cardinal feature in all machines of good design; that is to say, there should be just as many moving parts as necessary to the economical working of the machine and satisfactory as regards the stress put on any individual part. Complication is not necessarily the concomitant of multiplicity of moving parts so long as the presence of each tends towards the economical working of the machine and each is arranged on the simplest method available. The placing of the valves at the top of the combustion head, for instance, and their operating by rocking levers and tappet rods, if proved to possess a decided advantage over any alternative position, is justified, despite the increased number of moving parts. But to prove so, the economy must cover the cost of maintenance in repair as well as the consumption rate of the fuel. This idea should be borne in mind by a prospective purchaser of a car, but at the same time he should acquaint himself with the placing of the details so as to gather some idea as to whether the necessary provision for the repair has been made.

Reverting to the subject of mechanical derangement as a cause of knock, there is primarily the gudgeon pin, which, from the necessarily limited area of working surface and intermittent character of the pressure exerted upon it is usually the first part to claim attention. It is surprising to what an extent a mere suspicion of play in the piston or of the pin in the connecting rod will contribute to cause a serious knock, much more pronounced than a similar amount of play in a pair or a whole set of crank shaft bearings. The play in the latter bearings and at the big end of the connecting rods is usually of about equal degree, though the writer has seen cases where the crank steps required adjustment twice for the connecting rod's once. In single cylinder motors of the De Dion type, a ready cause of an often hard-to-trace knock is that set up by the flywheels running eccentrically, due to the wheels not registering concentric relatively to the crank pin's motion. The knock is partly caused by ill-balanced running of the engine, which is attendant upon the flywheel getting out of line. This will be the case where the connecting rod begins to rug against the side of the flywheel in the type of engine referred to. Multi-cylinder engines in which the

flywheel is at the same time part of the clutch, are apt to develop a knock, sometimes difficult to diagnose, but which is due to the key or feather binding it to the shaft, having become loose. The result is a disturbance in the balance and a rapidly increasing cause of knock. Piston rings when broken, usually set up a quasi grating, clicking noise in the cylinder, and again a somewhat similar noise is caused by insufficient lubrication. The latter, though strictly not in itself a mechanical derangement, is the cause of one, and is one of the most important points to claim attention with regard to the successful working of a motor.

Excessive backlash in the valve operating gear or where a lifting lever form of action is fitted for actuating the valves, are other causes of knock. Undue clearance between tappets and valve stems, or again between rocking lever ends and striking rods, or a looseness of these rocking levers about the pivot will cause noise. A trip mechanism in connection with a low tension magneto installation may readily cause a disagreeable noise when worn or wrongly adjusted. Finally, there remains the muffler or exhaust box as a source of noise—the chief, one might say the only offender on this score, is the single-cylinder high-speed motor. Except a muffler, which is so adequate as to cause a suspicion that it is as much a throttle of power as a means of deadening the exhaust, be fitted, it is rarely one finds a silent single-cylinder car. On the other hand, a four-cylinder engine offers far less objection on this score and with a better balanced turning effort and a lessened time interval between the exhaust discharge into the muffler, the exhausting effort is practically a continual series of puffs at constant velocity and equable temperature. In this connection, it would be of interest to learn how far fitting large cast iron exhaust pipes or primary expansion boxes which intercept the escaping exhaust gases, in view of the well known anti-vibratory character of that metal, may have contributed to the good effect.

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Because he could not see how it was going to make Boston any bigger, better or busier, Mayor Fitzgerald has declined the presidency of a corporation organized for the purpose of developing perpetual motion. The offer was made in a letter sent to the mayor by a man giving an address in one of the suburban districts. "I have a machine called perpetual motion," he wrote. "Some people say that perpetual motion is something that cannot be obtained. I have got a wheel that will create its own power or life. The dimensions of the wheel controls the power; that is to say, the bigger the wheel the more power it's got. We can build an automobile with rubber tires on just as at present, and in the centre of the wheel it breaks the atmosphere and creates a life. Each wheel has its own power. For a factory we can put up one big wheel and that will drive the shafting."

The Week's Patents.

814,171. Buffer for Use on Motor-Vehicles. Frederick R. Simms, London, England. Filed Sept. 26, 1905. Serial No. 280,200.

Claim.—1. A device of the class described, comprising a yielding pad and a yielding support for same adapted to be secured on the vehicle, the pad and support being in substantially the same horizontal plane, substantially as described.

814,187. Gas Turbine Engine. Wilmont E. Clark, New York, N. Y. Filed Apr. 20, 1905. Serial No. 256,589.

Claim.—1. In a turbine-engine, a casing having a turbine-chamber, a turbine therein, a shaft on which said turbine is secured, a chamber connected by ports with the first-mentioned chamber and having charging-inlets, a disk in said last-mentioned chamber rotatably mounted on the turbine-shaft and having explosion-chambers, means for turning said disk on said shaft simultaneously with the turbine and sparking plugs projecting into holes in the casing leading to said last-mentioned chamber, substantially as described.

814,268. Power Transmitting Mechanism. Alexander T. Brown, Syracuse, N. Y., assignor to The Brown-Lipe Gear Company, Syracuse, N. Y., a copartnership. Filed Dec. 7, 1905. Serial No. 290,685.

Claim.—1. In a vehicle, revoluble driven gears of substantially equal diameter arranged substantially end to end, with the axis of one in advance of, and substantially parallel to, the axis of the other, and transmitting-gears arranged on opposite sides of the axes of the driven gears, one of the transmitting-gears being in mesh with one of the driven gears and out of mesh with one of the driven gears, and the other transmitting-gear being in mesh with said other driven gear and out of mesh with the opposing driven gear, substantially as and for the purpose described.

814,287. Explosion Engine. Rudolf Hartwig, Ruttenscheid, near Essen-on-the-Ruhr, Germany, assignor to Fried. Krupp, Atkengesellschaft, Essen-on-the-Ruhr, Germany. Filed Feb. 25, 1904. Serial No. 195,288.

Claim.—1. In combination with an air-conduit, a pair of valves one for each conduit, and a governor, of means connecting the valves and the governor to transmit motion simultaneously to said valves adjustable to vary the ratio of transmission from the governor as between the valves and maintaining such ratio in every position of the governor.

814,377. Shoe for Pneumatic Tires. John W. Hyatt, Newark, N. J. Filed May 22, 1905. Serial No. 261,582.

Claim.—1. And endless trough-shaped shoe for pneumatic tires, comprising an endless warp with wire rings at opposite edges and a transverse filling having selvage at opposite edges for engaging such rings.

814,421. Valve Mechanism for Internal-Combustion Engines. Ernest Austin, Birmingham, England, assignor to the Wolseley Tool and Motor Car Co., Limited, Birmingham, England. Filed Aug. 27, 1904. Serial No. 222,418.

Claim.—1. Means of regulating the area of opening an air-valve of an internal-combustion engine which comprise a lever through the medium of which the valve is operated, means for actuating said lever, a bridle within which the lever is fulcrumed,

guides within which such bridle may move in an inward and outward direction, a spring which tends to move the bridle in one direction along its guides, and a screw device by which the bridle may be moved in the opposite direction against the pressure of the spring, substantially as set forth.

814,479. Resilient Vehicle Wheel. John W. Roddy, Washington, D. C. Filed Oct. 21, 1905. Serial No. 283,755.

Claim.—In a resilient vehicle-wheel, the combination, with the hub-flanges having inwardly-projecting rims, of the wheel-web having side rims, a series of spiral springs interposed between the flange-rims and the web-rims, and means to loosely clamp the web between the flanges.

814,502. Variable Speed Gearing. Joachim Anderson, Seattle, Wash. Filed Dec. 20, 1904. Serial No. 237,607.

Claim.—1. In apparatus of the class described, the combination of a driving-shaft, gears loosely mounted upon said shaft, a driven shaft, a gear fixedly mounted upon said driven shaft, an intermediate shaft, gears loosely mounted upon the last-named shaft and in mesh with said gears of the driving-shaft, another gear splined to the intermediate shaft and normally meshing with the said gear of the driven shaft, means for clutching the gears of the driving-shaft to the latter and also the corresponding gears of the intermediate shaft to their shaft, and means to clutch the driving and driven shafts directly to each other, substantially as described.

814,580. Vehicle Wheel. George H. Williams, Los Angeles, Cal. Filed Aug. 31, 1905. Serial No. 276,489.

Claim.—1. A vehicle wheel comprising outer and inner rims, U-shaped springs between said rims, and clamps fastening the respective ends of the springs to the respective rims and having end portions engaging at the side of the rims to prevent lateral movement.

814,609. Gas Engine. Edwin C. Kavanaugh. Holyoke, Mass. Filed May 17, 1904. Serial No. 208,400.

Claim.—1. In a gas-engine, the combination with a cylinder having the cylinder-formed with portions of different diameters, and a piston working therein and formed with a flange or enlargement corresponding to the cylinder portion of the larger diameter, a gas-supply inlet entering one end of the larger cylinder portion, a conduit leading from the lower end portion of the larger cylinder portion into the smaller cylinder portion, and an air-relief leading from a portion of the larger cylinder-chamber, above the piston enlargement downwardly to communication with the crank-inclosing portion of the engine-casing.

814,617. Carburetter. Richard M. Mick, Bussey, Iowa. Filed June 1, 1905. Serial No. 263,293.

Claim.—An improved carburetter, comprising a T-pipe-coupling, a supply-main screwed into one branch thereof, an air-pipe screwed into another branch thereof, a supporting-leg connected with the T-pipe-coupling, a plug in the lower end of the supply-pipe, an open-ended tube supported by said plug, a hydrocarbon-supply pipe, a valve therein, said valve supported upon the said supporting-leg, a coil-pipe communicating with said valve, said coil inclined as set forth and filled with granular substance, a valve communicating with said coil discharging into the T-coupling below said tube, a burner arranged below the coil, a pipe contained within the supply-main passed through the plug in the bottom thereof, a plug in the T-coupling having

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said pipe passed through it, a burner-pan supported upon said burner and a casing completely inclosing the burner, the coil and said valves formed with a doorway to provide access to the interior thereof, as set forth.

814,691. Storage Battery. Howard B. Hallock, Germantown, Pa., assignor to Samuel S. Williamson, Philadelphia, Pa. Filed May 15, 1905. Serial No. 260,418.

Claim.—1. In a storage battery, a jar of non-conducting material, two horizontally-arranged plates contained within the jar, the lower plate resting upon the bottom of the jar, the lower end of the sides of the jars to a height approximately level with the top of the lower plate being inclined inward and downward, the lower plate consisting of a grid of conducting material, said grid consisting of a frame inclined to fit upon the inside surface of the inclined sides of the jar and surrounding the plate with ribs extending across from one side to the other, active material pasted into the grid, a separator resting upon the top of the lower plate, the other plate resting upon the top of the separator.

814,729. Cushion Tire. Ransom E. Rathbun, Sioux City, Iowa. Filed Feb. 6, 1905. Serial No. 244,390.

Claim.—1. In a vehicle-wheel, the combination of an inner felly, an outer rim having blocks projecting at regular intervals toward the felly between the blocks, the longest of said springs extending between the blocks, the shortest of the springs being normally free of contact with the outer rim until pressure is brought thereon, substantially as described.

814,737. Tire. Benjamin C. Season, St. Louis, Mo., assignor of three-eighths to F. A. Kehl, St. Louis, Mo. Filed May 26, 1905. Serial No. 262,409.

Claim.—1. A wheel-tire comprising two rims having alining walls, the edges of which are in the form of sinusoidal curves, the projections formed by said curves alternating with each other, and transversely arranged tension-springs connected to the transversely-opposite projections; substantially as described.

814,798. Tire-Protector. Henry P. Palin, North Attleboro, Mass. Filed June 15, 1905. Serial No. 265,355.

Claim.—1. A tire-protector sleeve or the like provided with a plurality of outwardly-tapering frustum-shaped burs secured to the tread-face thereof, said burs each being formed with an outwardly-flaring central hole through the bur and having securing

means consisting of a rivet having a flange on the inner end which bears against the inner face of the protector and a shank which passes outwardly through the sleeve and the hole in the bur, the shank of the rivet being headed down and spread after being passed through the bur, so as to completely fill the flaring hole in the bur to the outer end thereof.

814,964. Motor-Cutter. Frank P. Jordan, New York, N. Y. Filed June 13, 1905. Serial No. 265,072.

Claim.—1. A sleigh having a flexible frame comprising a pivoted tube, a plunger in said tube and provided with a forked bearing end, a spring bearing on said tube and plunger, hanger-bars pivoted to the said fork and to the sleigh body, and a motor-driven traction wheel journaled in said forked bearing.

814,991. Automobile-Engine Suspension. Alfred C. Stewart, Los Angeles, Cal. Filed Mar. 1, 1905. Serial No. 247,879.

Claim.—1. In an automobile, the combination with an automobile engine-frame and supporting members therefor on the automobile, of a truss supporting the engine-frame on said supporting members, and comprising upper truss members extending obliquely downward from the upper part of the engine frame to said supporting members, and lower truss members extending obliquely upward from the lower part of the engine-frame to said supporting members.

815,010. Clutch. George W. Greenwood, Cleveland, Ohio. Filed May 27, 1903. Serial No. 158,934.

Claim.—1. The combination, with a shaft provided, in its periphery, with a groove or way extending longitudinally of and parallel with the axial line of the shaft, and a wheel or rotary member having a hub loosely mounted on the shaft and provided in one end face of the hub, with a recess which connects and communicates with the bore in the hub and is open at its outer end, and a guideway formed in the said face and extending circumferentially of the shaft and opening at one end thereof into said recess at one side of the recess and gradually reduced in depth toward the opposite end of the recess, which hub is provided, in its opposite end face and interiorly, with an annular recess which forms an annular enlargement of the aforesaid bore, of an endwise-shiftable bar engaging and extending longitudinally of the peripheral way in the hub and extending from end to end of the bore in the hub, which bar, at one end, has a key-forming head arranged to engage the aforesaid recess and is provided, at its op-

posite end, with a head arranged to engage the aforesaid annular bore enlargement; means for exerting pressure against the outer end of the last-mentioned head to actuate the bar endwise in one direction, and means for actuating the bar endwise in the opposite direction, and the aforesaid way in the shaft being long enough to accommodate the location and operation of the said bar, and the arrangement of the parts being such that the key-forming head of the bar shall engage the aforesaid recess, or the other head of the bar shall engage the aforesaid bore enlargement, according as the bar is in the one or the other of its positions.

815,045. Automobile. Charles Schmidt, Cleveland, Ohio, assignor to The Peerless Motor Car Company, Cleveland, Ohio, a corporation of West Virginia. Filed Oct. 9, 1905. Serial No. 281,881.

Claim.—1. In an automobile, the combination with two side frame members, of a crank-case consisting of three longitudinally-separable sections, to wit, the section A having laterally-extended arms which are secured to said frame members, a bottom dish-shaped section and an intermediate section the section A being formed with the upper half of the crank-shaft bearings, and section with the lower half of said bearings.

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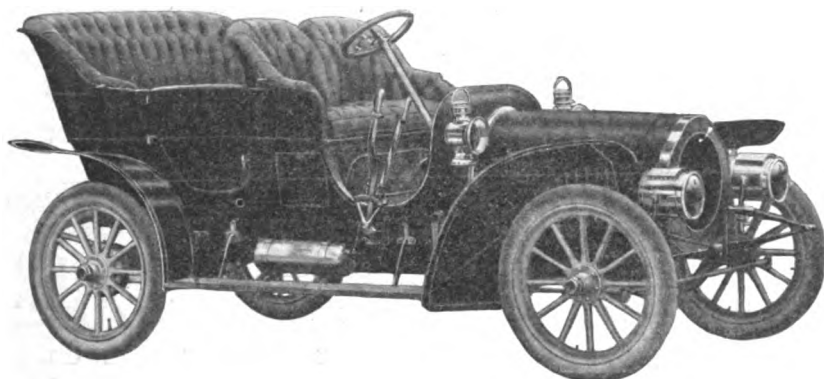
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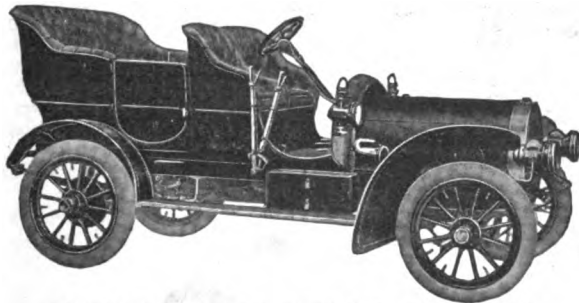
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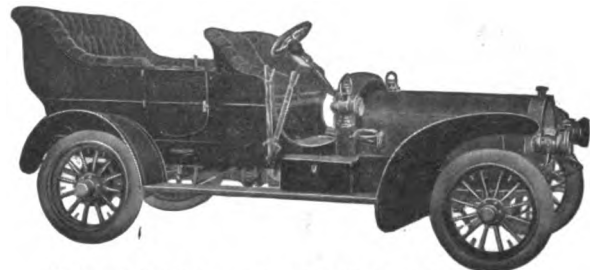
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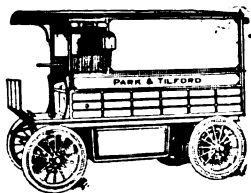
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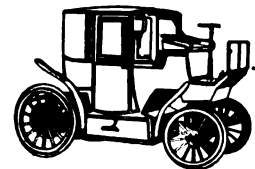
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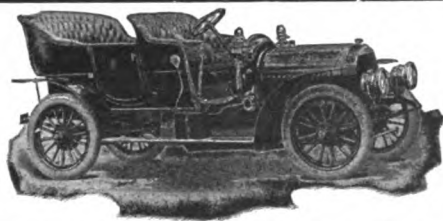
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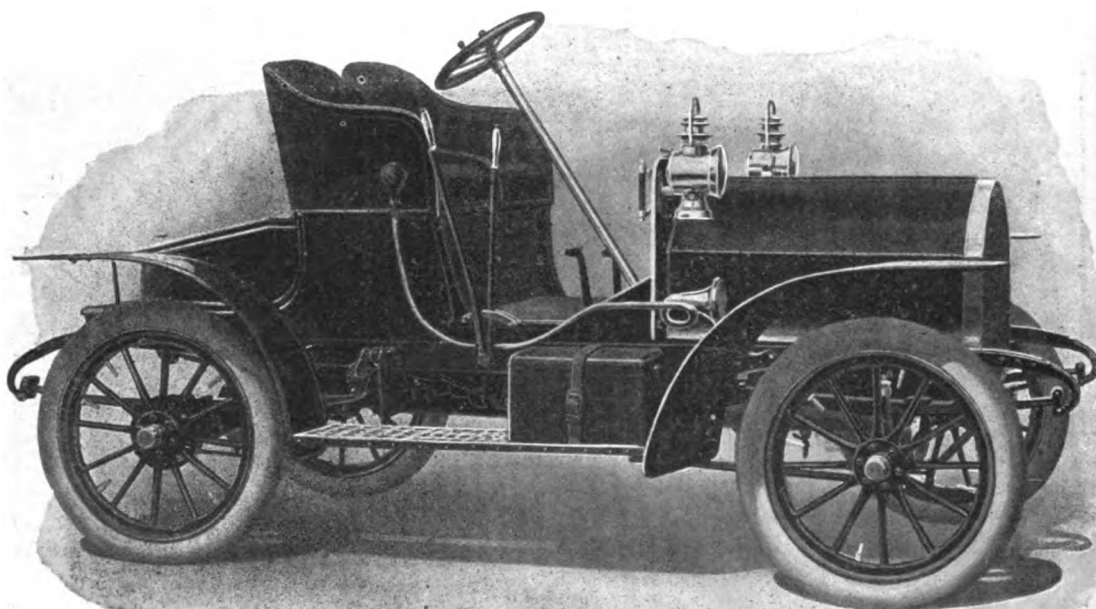
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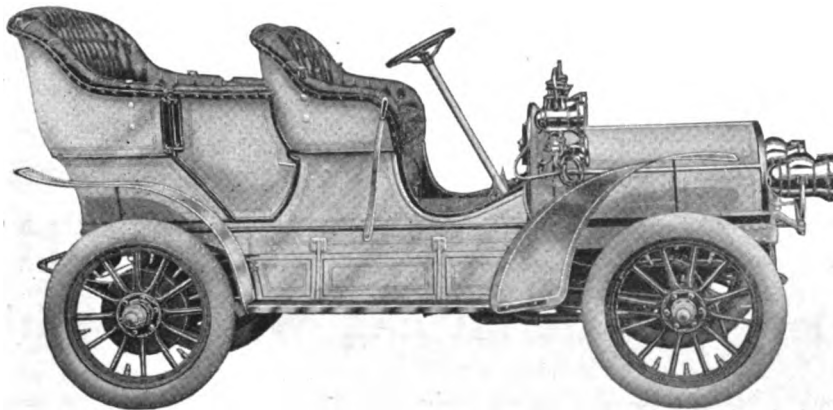
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AN EXTRAORDINARY CAR AT AN ORDINARY PRICE.



Model C, 24 h. p., \$2500.

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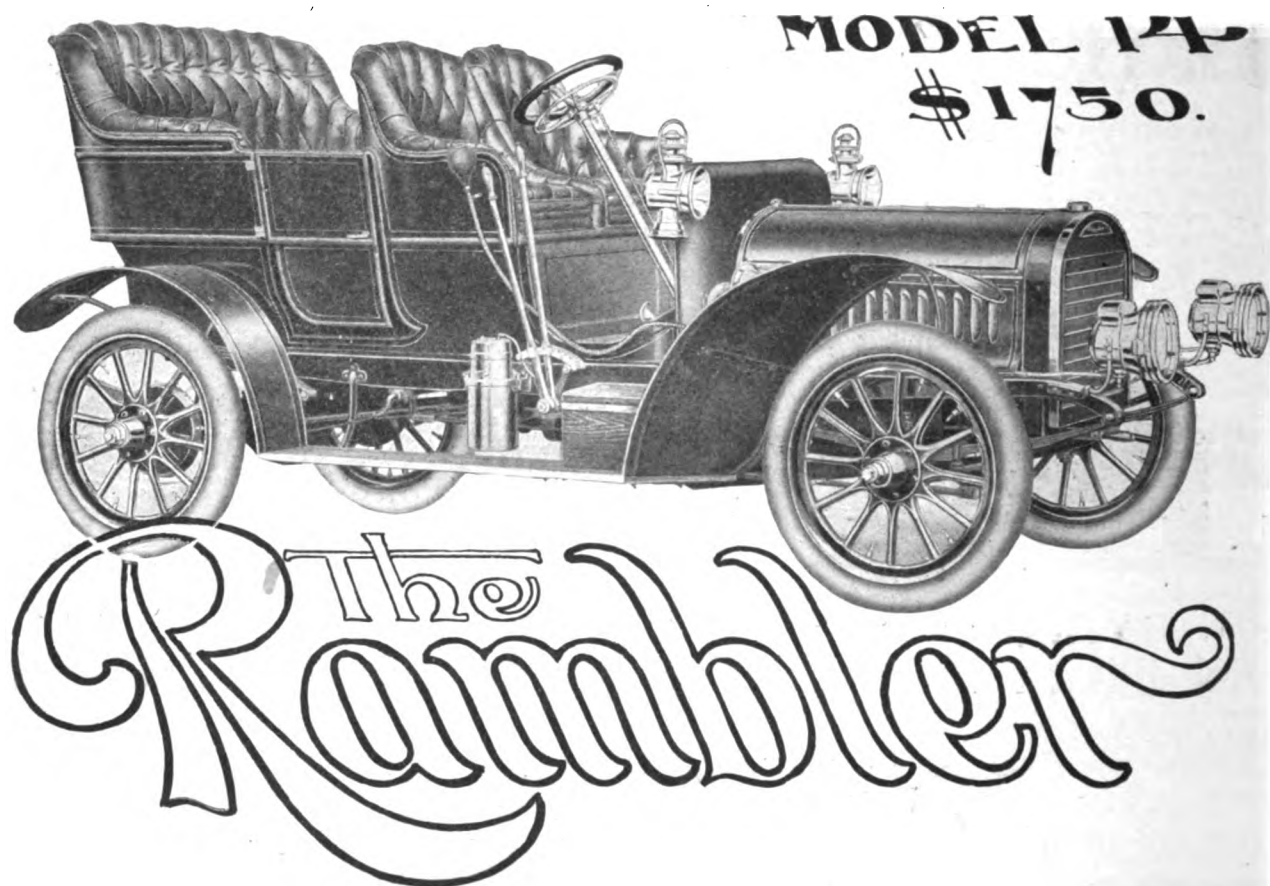
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THE CAR THAT IS RIGHT in Design, Material and Workmanship.

The highest possible grade of material, handled according to the design of skilled and experienced engineers, by expert mechanics in the largest and most thoroughly equipped automobile factory in the world.

There is no part based on guess work or on what the other fellow does, and the costly experimental work is done in the factory and not by the purchaser.

It is RIGHT in the beginning, RIGHT when delivered and stays RIGHT all the time.

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THE RIGHT CAR AT THE RIGHT PRICE.

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THE MOTOR WORLD.

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE
AND KINDRED INTERESTS

Volume XII.

New York, U. S. A., Thursday, March 29, 1906.

No. 9

PITTSBURG DEALERS UNITE

They Raise Storage Rates and Resolve to Present "Bolder Front" to Manufacturers.

By far the most interesting happening of last week in Pittsburg automobile circles was the formation on Thursday of the Association of Automobile Dealers of Pittsburg, of which W. N. Murray, of the Standard Automobile Co., was elected president. W. A. Richwine, of the Hiland Automobile Co., was chosen vice-president, and Arthur L. Banker, of Banker Bros'. Co., secretary-treasurer.

Of course, the object of the association will be to further the interests of dealers, and it was announced that they, the dealers, would "show a bolder front to manufacturers who persist in imposing upon them." One of the first things the Association did was to agree on uniform storage rates, which are increases over those at present in force. The advance did not please one dealer, L. F. Martin, so he withdrew. Martin thought the present rates for storing cars was high enough. The new schedule which will go into effect on April 1st, is as follows: Runabouts, \$5 a week; touring cars, \$6 a week, and limousines, \$7 a week.

The dealers who were enrolled in the Association are The Standard Automobile Co., Keystone Automobile Co., Banker Brothers' Automobile Co., Atlas Automobile Co., Hiland Automobile Co., Winton Motor Co., Central Automobile Co., Allegheny Automobile Co., E. Liberty Automobile Co.

Whitlock Coolers Escape the Fire.

Fire on Sunday morning last, 25th inst., in the plant of the Whitlock Coil Pipe Co., Hartford, Conn., totally destroyed one of the several shops comprising the works, but fortunately did not reach or in any way affect the buildings in which the Whitlock coolers are produced. It was the original shop in which coil pipe is made that was destroyed. The loss, about \$20,000, is fully covered by insurance.

The fire is supposed to have originated in rather an unusual manner. A gang of men engaged on a rush job were engaged in painting a large coil of pipe, the work being done over a large tank into which

the waste paint dripped. The paint had become thickened and the men were thinning it out with benzine, when sparks from a circular saw which was cutting cold pipe nearby, reached the benzine and ignited it.

Shifts of Branch Managers.

J. W. McAlman, long the manager of the Locomobile branch in Boston, has resigned that office to assume the management of the Electric Vehicle branch in that city, left vacant by the transferral of W. W. Burk to New York. F. E. Dayton, of Hartford, was temporarily in charge of the Electric Vehicle establishment in Boston, and did such good work while there that he has been appointed manager of the Chicago branch, succeeding W. H. Durphy, who resigned to engage in the typewriter business.

O'Hara Buys Bankrupt Plant.

C. J. O'Hara, of Detroit, Mich., has purchased the plant of the Auto Brass & Aluminum Co., of Flint, Mich., which was forced into bankruptcy last month. The purchase price has not yet been made public. At a meeting of the creditors, William R. Franklin was elected trustee over George A. Marston, of Bay City, who was temporary receiver appointed by the United States Supreme Court, and it is supposed that the affairs of the company will be wound up.

Bogert to Form Parts Company.

F. H. Bogert, mechanical engineer of the Corbin Motor Vehicle Co., has resigned that office, and on April 1st will remove to Hartford, Conn., to complete the organization of a company which will engage in the manufacture of automobile parts of which he will become the head. Mr. Bogert will not be wholly lost to the Corbin interests, however, as he will continue to serve them in an advisory capacity.

Accessory Makers to Meet in Buffalo.

A meeting of the Motor and Accessory Manufacturers, Inc., has been called for April 28th, at Buffalo. It is expected that some further light will be then shed on the \$50,000 suit for alleged "trespass and conspiracy" which has been brought against the organization by A. M. Andrews, the disgruntled Chicago parts show promoter.

A. P. C. ACQUIRES DYER PATENTS

On Guide Plates, Sliding Gears and Sub-frames—Big Price Paid for Them.

Five more patents have just fallen into the hopper of the Selden mill—the Association Patents Co. They are the Dyer patents, for which, as the Motor World of Feb. 8th last, exclusively stated, the Selden interests were negotiating.

The deal for them was completed late last week and appears to have been consummated on rather unusual lines. Both sides agree that the sum paid by the Association Patents Co. was what is covered by the term "substantial" and while the contract gives the Patents Company the right to issue sub-licenses, it also provides that either party may bring suits and that any royalties or damages collected shall be equally divided.

Leonard H. Dyer, the patentee, is also a New York attorney and on his own account already has pending suits against the Lozier Motor Co. and the Auto Import Co., but as both of these concerns are operating under Selden licenses, he stated that the proceedings probably will be discontinued. He told a Motor World man, however, that he has practically ready for institution, actions against a number of other manufacturers and as the terms of his agreement with the Association Patents Co. make it worth while, it is his evident intention to make a wide sweep.

At least three of the patents apply to forms of construction or application that are in at least fairly general use, viz., (1) the gridiron segment or slotted guide plate for the gear changing levers, (2) the sliding gear transmission of the type in which the secondary shaft is constantly in motion and (3) the sub-frame form of chassis construction.

No. 657,650, issued Sept. 11, 1900, is known as the "gridiron" or "gate patent," and covers the use of a fixed guide plate in connection with the operating mechanism of the transmission gearing, having several recesses into which the change speed lever may be passed in securing the respective changes. The object and intent of this plate is to guide and de-

termine the position of the lever, and it covers what is now known as the selective system, or gate change.

The second of these grants, No. 662,401, of Nov. 27, 1900, which is even more far reaching in its application to cars of present day construction, is a gear patent which is drawn to cover any form of transmission gearing employing two parallel shafts which are at all times connected by a pair of gears constantly in mesh, in conjunction with another pair or set of gears which may be brought into mesh by sliding one or the other of them along its shaft. This, in a word, covers the use of any type of sliding gear transmission in which the secondary or lay shaft is constantly in motion, and in which the gear changes are secured by sliding one or more of the gears into or out of mesh by a longitudinal motion along their shafts, it being understood that one pair of gears is constantly in mesh. Although a positive driving connection was secured in the original of this patent, which is in many ways analogous to the common method of securing the direct drive, the grant does not, in the opinion of Mr. Dyer himself, cover the direct drive connection alone, although many systems employing the drive are subject to it.

No. 676,223, of June 11, 1901, is styled the "bridge patent," and covers the idea of mounting the motor and other active mechanism of the car upon a bridge or framework independent of the main frame of the vehicle, or in other words, the chassis. It embraces an arrangement in which the engine, driving shaft, countershaft, and other parts are supported as a unit by a frame bolted to the chassis. It covers in fine, the method of sub-frame construction, and also embraces the "three-point suspension" idea, which plays so important a part in motor car construction at the present time.

No. 643,595, of Feb. 13, 1900, applies to a system of change speed gearing for cycles comprising a pinion which is adapted to be shifted into mesh with two gears of equal size, one of which is connected directly to its shaft, and the other, indirectly, through the medium of a change speed mechanism. In the original arrangement, which was developed for a tricycle, an epicycle arrangement was adopted—the planetary type of common parlance—and it is thought by the inventor that the method might be construed to apply to the use of the two-speed coaster hub combination used to a large extent in cycle construction at the present time, insofar as that employs a single sliding pinion.

The fifth patent, No. 662,400, of Nov. 27, 1900, comprises still another type of change speed gearing in which a method of disconnecting the gearing from both the engine and driving gear is provided, the intent being to facilitate the changing of the gears by simultaneously disconnecting them from both driving and driven members of the machine, and rendering them absolutely idle. This, in itself, involves a principle which appears not to have been adopted to any degree up to the present time, and is not, therefore, of particular interest.

The Week's Incorporations.

Cleveland, Ohio.—Chemical Auto Co., under Ohio laws, with \$25,000 capital. Corporators—D. G. Nearpass, A. F. Neith and Elijah Bates.

Chicago, Ill.—Coey Automobile Co., under Illinois laws, with \$2,500 capital; to rent automobiles. Corporators—Benjamin Levering, G. N. Beckford and A. A. Boone.

Chicago, Ill.—C. A. Coey & Co., under Illinois laws, with \$5,000 capital; to deal in automobiles. Corporators—Benjamin Levering, G. N. Beckford and A. A. Boone.

Boston, Mass.—Darracq Motor Car Co., under Massachusetts laws, with \$25,000 capital; to deal in automobiles. Corporators—A. A. Hastings and F. W. Clark, both of Boston.

New York City, N. Y.—Wakeman Motor Co., under New York laws, with \$100,000 capital. Corporators—Harry G. Wakeman, Haskell C. Billings and John C. Billings, all of New York City.

Cleveland, Ohio.—Colonial Automobile Co., under Ohio laws, with \$25,000 capital. Corporators—D. G. Nearpass, E. G. Whitten, A. F. Neith, J. M. Gee and A. F. Neill.

Chicago, Ill.—Chicago Automobile Club Auxiliary Association, under Illinois laws, with \$150,000; to build a clubhouse. Corporators—John Farson, Ira M. Gobe and Sidney H. Gorham.

Boston, Mass.—Wayne Automobile Co. of New England, under Massachusetts laws, with \$3,000 capital; to deal in automobiles. Corporators—J. H. McCarthy and G. C. Lewis, both of Boston.

Camden, N. J.—White Motor Co., under New Jersey laws, with \$150,000 capital; to manufacture automobiles. Corporators—J. W. White, Philadelphia; C. F. Woodhull and C. S. King, Camden.

St. Louis, Mo.—St. Louis Automobile Service Co., under Missouri laws, with \$5,000 capital; to operate motor stage lines. Corporators—Lee Meriweather, Robert J. Bowman and Frank S. Reel.

East Orange, N. J.—Charles Gate Engineering Co., under New Jersey laws, with \$5,000 capital; to manufacture automobiles, motor cars, etc. Corporators—A. R. Bangs, H. A. Bangs, H. B. Hollings, G. H. Bauman and H. H. Puking, all of East Orange.

In the Retail World.

John Burdick has started in business at 35 First street, Troy, N. Y. He has taken the agency for the National cars and the Walker runabout.

The Essex Auto Co., of Newark, N. J., has opened a branch store at 807-809 Montgomery street, Jersey City. Dewitt Romaine is in charge.

The Newark Garage & Repair Co. opened for business in Newark, N. J., last week. It is an offshoot of the Calvert-Zusi Auto Co., 213-215 Clinton avenue.

The Auto Tire Repair Co. have removed

to 396 Halsey street, Newark, N. J. The new establishment, they claim, gives them the largest steam vulcanizing works in the State.

John F. Fleming will build a modern garage in Washington street, Brookline, Mass. The building will be fireproof and will have storage accommodations for one hundred cars.

Joseph R. Mick, formerly with the Autocar Co., Ardmore, Pa., has leased the building at 58 North Second street, Camden, N. J., where he will carry on a general garage business. The Autocar will be handled.

Orey Jansen, of Davenport, Ind., has formed the Iowa Tire & Vulcanizing Co., which will do an exclusive tire and tire repair business. A. B. Craft, formerly with the Fisk Rubber Co., will be in charge.

The Pond Automobile Station formally opened its commodious garage at Plymouth and Assonet streets, Worcester, Mass., on Saturday last. It is a fire-proof three-story building and contains 23,000 square feet of floor space. The station is agent for the Pope and Winton line of cars.

The Hampden Automobile Co., which has garages in Springfield and Westfield, has made quite a change in its officials. Myron A. Gilman, of Westfield, has resigned as secretary-treasurer and George W. Cook, of Springfield, succeeds him to that position, while Dr. G. H. Janes, of Westfield, relinquished the office of vice-president. Robert A. McKee, of Springfield, has been made president of the concern. The change means that the company will be managed entirely from the Springfield headquarters and that a man will be placed in charge of the Westfield garage.

Small Failure in New York.

An involuntary petition in bankruptcy was filed last Saturday against the National Automobile Co., of 205-209 East Eighty-sixth street, New York City, by the Columbia Lubricants Co., to whom the concern was indebted to the extent of \$164. Judge Adams appointed Robert A. Inch receiver, and fixed his bond at \$2,500. The National Automobile Co., or the Yorkville Garage, as it was better known, did a general storage and repair business, and cut but a small figure in the local trade. J. Edward DeMar was the president. A statement of the company on June 30, 1905, showed assets \$27,000, and liabilities \$7,000.

White Buys the West End Property.

The White Sewing Machine Co. has bought of William J. H. Crawford, the property Nos. 205 to 209 West End avenue, New York City, and from William Crawford No. 211, adjoining, forming a plot 100x100, partly covered by a six-story building. The structure will be remodeled as a garage and, as the Motor World stated several weeks since, when the alterations are completed, the White branch will be removed from its present location on West Sixty-second street.

BIG COMPANY BANKRUPT

Creditors Act Against Vehicle Equipment Company—Reorganization in Progress.

A petition in involuntary bankruptcy was filed yesterday in the United States Court for the Second District against the Vehicle Equipment Company, of Long Island City, and brought out the fact that that company has been in process of quiet reorganization for some time and that the reconstructed concern will be styled the General Vehicle Co. The petitioning creditors are Kerr, Page & Cooper, George Endicott and Smith & Mabley, with claims ranging from \$195 to \$869.

Kenneson, Emlev and Rubino, attorneys for the petitioners, allege that the Vehicle Equipment Company committed acts of bankruptcy in that, while insolvent, it made preferential payments, transferring to others portions of its property, all of which was startling news, as no suggestion of trouble had reached the outside world, although the company was known to be "slow pay."

After the filing of the petition, Judge Thomas appointed as receiver for the company Charles O. Dewey, of Brooklyn, who filed a bond for \$10,000. The officers and stockholders of the company were cited to appear on April 6 to show cause why the company should not be declared a bankrupt.

Inquiry at the Vehicle Equipment Company's office in Long Island City, brought out few additional facts. It was stated that a "general clean-up" and reorganization was in progress and is practically completed, also that when finished the Vehicle Equipment Co. would give way, as stated, to the General Vehicle Co.

The Vehicle Equipment Co. was originally incorporated under New Jersey laws in December, 1900, with a capital stock of \$400,000 and was reorganized under New York laws in July, 1903, and the capital stock has been increased to \$3,000,000, of which \$2,000,000 is common stock and \$1,000,000 preferred stock. There is also a bond issue of \$1,000,000. Robert McA. Lloyd was president, Hector H. Havemeyer vice-president and Arthur H. Havemeyer, secretary. They are sons of William F. Havemeyer, the sugar refiner.

New York Outdoor Show in Favor.

At a meeting of the New York Automobile Trade Association, held on Monday evening last, President C. R. Mabley stated that in response to the circulars sent out, more than eighty per cent. of the members of the association had expressed themselves in favor of the proposed open air carnival. The special committee appointed to take the matter in charge is accordingly pro-

ceeding with the plans. As stated previously, the event will be held at Empire City Track, on the 24th, 25th and 26th of May.

In addition to the 6,000 square feet of space under the grandstand, there will be three or more tents, each covering an area of about 7,000 square feet and most of this space will be devoted to an exhibition of cars. As a means of calling attention to the affair, a number of events of interest will be held, chief among which will be the first balloon race ever held in this country. A number of aeroplanes will be exhibited and automobiles will be used to show them in flight. Prominent aeronauts are to be invited to participate in both the balloon race and the aeroplane trials. It is planned that half of the profits are to go to the association and the other half to be rebated to the members in proportion to the amount of space occupied.

Fire Damages Two Chicago Concerns.

Fire in the five-story building at 80 to 84 Michigan avenue, Chicago, Ill., last Saturday afternoon, 24th inst., which was being reconstructed for the Goodyear Tire and Rubber Co., and the Beckley-Ralston Co., dealers in supplies, caused a loss of \$100,000. These two concerns were just moving in, otherwise the loss would have been much greater. The flames were first discovered in the salesrooms of the tire company, but the building was reduced to a mass of ruins so quickly that it was impossible to tell where the fire originated.

Exports Continue to Expand.

The export returns for the month of February show continued gains in that department, the total for February, 1905, was \$280,137, and for the same short month of the present year, \$332,713. The totals for the period of eight months terminating with February for three years past, also exhibit very substantial increases. They are \$1,141,371 for 1904; \$1,402,775 for 1905, and \$1,771,313 for 1906.

Murilly to Manufacture at Marion.

The old electrical works at Marion, Ind., are, it is stated, being remodelled for the Murilly Manufacturing Co., who will manufacture commercial cars—a light delivery wagon and two and three-ton trucks. The engines—they are to be two-cycle, will be made in the Marion plant, where also the cars will be assembled, the other parts being made elsewhere. Wilbur Myers is the local promoter of the project.

Fire Destroys Rochester Garage.

Fire in the garage of the Thompson-Schoeffel Company, in Plymouth avenue, south, Rochester, N. Y., Friday afternoon last, 23d inst., wrought damage to the extent of about \$80,000. Thirty or more cars were stored in the garage and practically all of these were burned beyond repair, but the loss is partly covered by insurance.

TWO GARAGES ARE OUSTED

Failure to Comply with Gasolene Regulations Results in Summary Proceedings.

Not merely for failing to comply with the rules of the New York Bureau of Combustibles, but owing to the fact that they occupied buildings which could not be made to conform to these regulations, the occupants of garages at 304 West Fifty-fourth street, run by A. Hartog, and at 308-310 West Fifty-ninth street, conducted by William Schrieber, were compelled to vacate them during the past week and the places will not be permitted to be occupied as garages in the future.

In the first instance the reason assigned is that there are frame buildings and tenements directly in the rear of the place, while in the second and upper floors of the building are occupied as a dancing school, billiard hall and bowling alleys, and both accordingly violate the law which prohibits the maintenance of a garage where more than ten people congregate regularly in a portion of the same building outside of the garage.

This means that eviction will also follow in the case of a number of garages, the upper floors of which are used for dwelling purposes or other lines of business, so that many of the old time places will doubtless be wiped out.

Monarch to Build \$500 Car.

E. B. McCord, one of the members of the Monarch Motor Car Co., which was incorporated at Chicago to take over the business of the bankrupt Monarch Automobile Co., which did not flourish at North Aurora, Ill., is authority for the statement that the new company will make an entirely different car from the one turned out at Aurora. The new machine will have four cylinders, developing eighteen horsepower, and will sell for \$500.

More Room for Tops and Bodies.

The Automobile Cover and Top Co., New York, is growing ambitious. They have removed to 154 East Fifty-seventh street, where they will have some 20,000 square feet and where they will inaugurate departments for the building of bodies and for painting and upholstering work. Percy Owen and R. E. Fulton, who formerly were interested in the company, have disposed of their holdings to the other members of it, Messrs. Fickling and Spinning.

Ranier Gets Philadelphia Location.

The Ranier Co. finally have located their Philadelphia branch at 236 North Broad street, in the premises previously occupied by the La Roche Automobile Co. The well-known A. J. Picard will manage the establishment.

FISK TIRES

**SECURELY LOCKED
TO RIM**

INSURING POSITIVE SAFETY

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EXCLUSIVE FEATURES
HAVE GIVEN

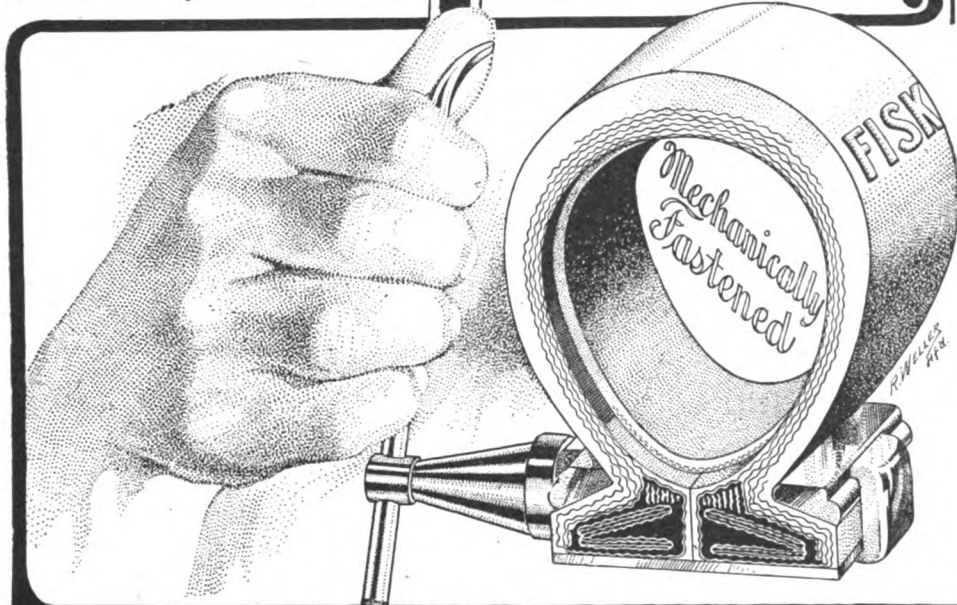
FISK TIRES
WORLD-WIDE CELEBRITY,

These points of advantage, combined with Durability (insured by the finest Quality and Workmanship) have caused there enthusiastic endorsement by every one of experience.

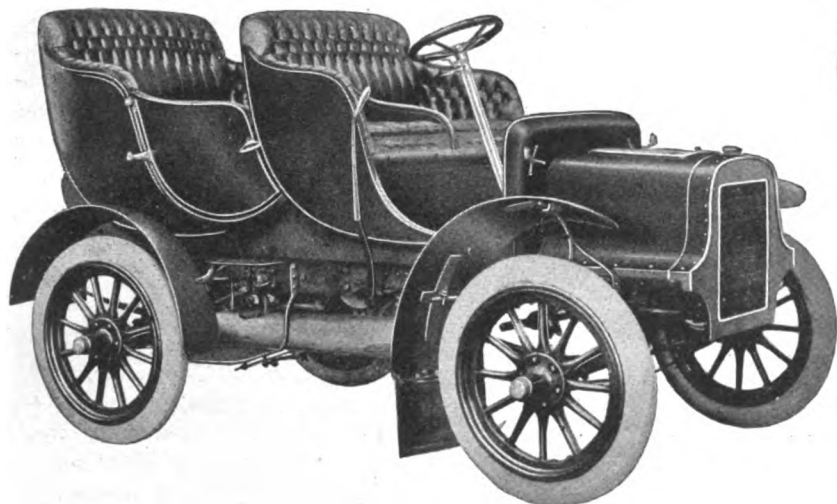
Note the Air Space

All above the Rim!

The Fisk Rubber Co.,
CHICOPEE FALLS, MASS.



THE FISK RUBBER CO. — CHICOPEE FALLS, MASS.



Cadillac Model M. \$950.00.

CADILLAC MAINTENANCE.

**Cadillacs have the reputation
of being the Most Economical
Cars to Maintain.**

HERE'S ONE OF THE REASONS:

All parts, including those of the motor, are made according to our system of limit gauges. No piece is permitted to pass inspection if it exceeds the prescribed limits of measurement which in some cases are specified to the one-thousandth part of an inch. That is why there is right and that is why, when for any reason it becomes necessary to replace a part, that it can be ordered with the assurance that it will not require altering to fit and can be easily installed.

We cannot offer the argument to dealers that repairs on CADILLACS will pay running expenses so that profits on sales will be "all velvet."

Our catalog explains why the CADILLAC is THE CAR for the dealer and THE CAR for the motorist.

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NEW YORK, MARCH 29, 1906.

Motor Cars for Military Service.

Just what position the motor car will come to occupy in the operations of the warring nations of the future, is impossible to tell. At first conceived as a vehicle of pleasure only, and later dreamed of in connection with its probable utilitarian possibilities, the power driven vehicle has been brought to a point where it is an essential in business as well as pleasure, and is fast assuming a position of greater strength in that respect. Once having taken up such a position, it is not unnatural that the war departments of the various nations should begin to consider it in a serious light as a possible addition to their equipment, and a useful adjunct in time of strife.

For the transportation of light troops, the carrying of dispatches, the conveyance of officers in time of manœuvres, and in army transportation of goods, it has already proved itself of value in several countries. Experimental vehicles are in use here and there, proving the reliability and efficiency of motor propulsion in replacing the horse and the indefatigable mule, and the success

of the experiments seems to be well assured. Meanwhile, two new phases of the matter have arisen, one only recently, and the other within a twelve-month. The first relates to the construction of motor driven armored vehicles carrying a light equipment of field guns, and suitable for reconnoitering work and other practice where the conditions of speed and the rapid fire of one or two light pieces are to be considered. The other is the formation in England of the Motor Vehicle Corps of motorists, who are pledged to do duty in case of war, and the recent enforced counterpart of the same idea in Germany.

Thus there are possibilities of the motor transport wagon, the motor car in signal service work and in doing of dispatch duty, the motor ambulance, the motor machine shop—one of which has been constructed in England—the motor fort, and last, but not least, the motor militia. With the increase of civilization, and the spread of the good roads movement in times of peace, the possible utility of the motor car in time of war is constantly increasing, from the standpoint of its mere serviceability. The development of its design, involving an increase in its all-around usefulness and qualities of endurance, make it a more feasible proposition for any use whatever as time goes on, and the development of special forms of vehicle suited to various uses, increases its applicability to specific duties apart from those of the mere transportation of passengers and goods.

Before the motor car shall have become fully applicable to any service demanding the absolute reliability which is required of the implements of war, and shall have become responsive in every event to the emergency work which is the epitome of the business, many things must be accomplished. Parts must be simplified and fined down to the very limit of size compatible with strength and endurance, methods of the transmission and control of power must be reduced to their lowest terms, and the factors of maintenance and operation must undergo a marked reduction. All these are, however, but the natural steps in the process of evolution which is self-inductive and constantly going on.

Satisfactory operation will come in time, with the accomplishment of these, and a knowledge of the limitations of the machine. Meantime, the motor car is serving a useful purpose in the world of commerce and pleasure, and is verging toward a useful application in military service. It may

be that it will come to take the place of the war chariots of the days of the Caesars; it may be that it will come to supercede the use of animals, and thereby reduce by an increment the horrors of action and the cruelty of the thing. These are probabilities, yet they may never be realized. But that they will in part, and that the extent to which they will, is dependent more upon highway development, than upon any other factor, is at once apparent. In fact, that alone has more to do with the further introduction of the motor car in practical work than any other item and is more vital to the industry than any of the questions of design, fuel or cost.

Abuse of the Small Car.

Swelling the chorus of complaint that emanates from disgruntled users of cars are "kicks" of every imaginable nature, starting with the general condemnation that sums up the character of the car as "rotten" and descending to particulars in the shape of fault-finding that contents itself with calling to Heaven to witness that never was there such a mechanical bungle as the carburetter or timer with which the car in question is afflicted. Between these two extremes there is no ill or combination of ills that genius can invent that the dissatisfied user does not sooner or later attribute to his car.

They are interesting, these hundred and one petty ills to which the mechanism of the car is subject and learning to locate and master them means invaluable experience to the motorist who is not too ready to condemn his machine generally without looking for the trouble. They teach him just where to look for it and just how to remedy it when found and what is far more than all, they teach him that every little thing that happens to the engine or its accessories on the road is not necessarily fatal to further progress by any means. Probably ninety per cent. of the derangements that occur are not responsible for more than a five or ten-minute stop that entails no great amount of persuasion on the part of the driver to start the car again.

It would require a volume to attempt to catalogue these "pannes" as the Frenchman terms them, for they assume such multifarious shapes that it is not unusual for many of them to be given a new name with each new discoverer. In consequence, many owners and drivers do not recognize in their troubles the same thing that afflicts the other fellow because he happens to describe it differently. For this reason, the

task of compiling a comprehensive list of all the shortcomings that a car may suffer from and then boiling the aggregation down to a point where it might be said to constitute a compendium and ready reference for all troubles on the road, would involve a task of no mean proportions.

As an attempt to pursue an investigation along these lines any further can only be profitless, it is interesting to revert to their very inception and see what the cause of so much fault finding really is. And to do this it is necessary to go even further back and take into consideration the class of owners from which the greater part of the chorus of complaint arises. It will soon be apparent that it is the little man who does most of the kicking. It is the little man with the little car that is responsible for at least a goodly part of the vast amount of dissatisfaction that is ever present in some quarters. And what is strange about it all is that the reason is apparent at a glance to every one but the complainer. The fact that the man with the small car who complains so lustily of its inability to perform is trying to keep pace with those of many times greater power and cost accounts for his troubles in a word, and they stand out all over his car.

When the man with the ten horsepower good-roads-kind of a car takes it into his head that he wants to keep up with the procession and tries to make ten horsepower do the work of thirty, trouble is bound to follow sooner or later and that it does not appear sooner is a testimonial to the honest efforts of the maker in building it. The small car is intended for light work; it is also intended to travel at a comparatively low rate of speed and its carrying capacity is limited, whether it be a runabout or what has popularly come to be known as a light touring car. There is a wide field of usefulness for such cars and within the limits of the service for which they are intended, there is nothing more efficient, expense of maintenance considered. But when the owner of such a car attempts to make it keep up with one costing many times more, it amounts to about the same thing as hitching a modern thirty-foot trolley car behind a team of horses accustomed to hauling the ordinary horse car; they will do the work for a short time—after a fashion, but then they are done for. It is merely a case of overloading and the result is always the same, regardless of the nature of the thing which is thus taxed far beyond its limits.

When the owner of the small car finds that its cylinder coughs consumptively and its connecting rod clanks ominously at every stroke, its gears groan and its springs are sagged, he seldom if ever puts it down to anything but the shortcomings of the car itself. Poor material and poor construction strike him as the sole causes of the trouble and he does not consider for a moment that he has been making a small boy do two men's work with premature senility as the result. Before condemning a small machine that has gone to pieces after a season's driving, it would be well for its owner to hark back in his mind and try to realize whether its condition is not due to his desire to be in a class on the road for which his car was never intended.

Tilting at the Poles.

When an idea once becomes popularized, its application soon becomes widespread. And granted that its acceptance by the majority has been a matter of time, and has required something of demonstration as well as primary development in itself, then the greater the scope of its application. For perhaps a round dozen of years the automobile has been undergoing a process of development, and at the same time the automobile idea has been germinating. All along, there have been exceptions to the general rule, both in the fact of machines which have been ahead of their time, and in the case of people who have become impregnated with the automobile idea. But for the most part, a two-fold process has been going on, the one—the development of the idea—being subsidiary to and dependent on the other. Now, however, the conditions are being reversed, and the public, after a period of doubting, is getting an appreciation of the automobile which is fully up to its capacity. The only danger is that the appreciation may come to exceed the possibilities of the thing itself, and a revulsion of feeling thus be brought about.

A very good illustration of the way in which the use of the automobile is spreading, and the amount of credence which is being given to its powers, is to be seen in the proposition to use motor vehicles in polar expeditions. At the present time, there are no less than three distinct and different projects on foot for utilizing motor cars either directly or in the secondary way in renewed attempts to discover the earth's poles. Two of these contemplate a northern journey, and one a southern.

One of the former, intends the use of the automobile to be merely supplementary to that of the other means of transport, and is but an item in a very extensive plan. The other, intends the use of the motor vehicles to be entirely independent of other vehicles, the cars designed, being of the house car variety, and furnishing living accommodations for the explorers while en route. The southern expedition, on the other hand, which is understood to be only in embryo so far, proposes to utilize the motor transportation in making a dash to the pole during the summer months.

Whatever may be the general difficulties attendant on polar exploration, the fact remains that such work involves a deal of travel over hundreds, and in some cases, thousand of miles of trackless and bottomless snow and ice. To suppose that a machine designed for use upon common highways, even American highways, could be hoped to negotiate any sufficient amount of travel over such courses, is but the wildest stretch of imagination. And to suppose that machines especially built for the purpose with the limited understanding of the problems of motor propulsion now possessed, seems hardly worth the thought. In three or four years, the result might not be the same, but at present, it hardly seems likely that anything but complete and abject failure can await the hardy individual who attempts to motor to the pole.

If the bill just introduced into the New Jersey legislature require the use of lamps on all vehicles without distinction is passed, it will do as much to increase the safety of road travel as all of the rabid Frelinghuysen anti-automobile bills ever devised. But it is dollars to doughnuts that the farmers, truckmen and all the other elements that so vociferously favor the Frelinghuysen measure will as bitterly oppose the universal lights bill if they are given an opportunity. They want safety, but at the expense and inconvenience of the "other fellow." Only last week, the same elements succeeded in killing a similar ordinance in St. Louis.

It now appears certain that the open air show idea is to be given an opportunity to prove itself in New York. The plan outlined is calculated to attract attention when interest in the automobile is at its height and there seems to be no reason why success should not reward the efforts of its promoters.

LEE'S HORSE BILL SET BACK

Got a Good Start in New York Legislature and was then Recommitted.

The amendment to the present New York State automobile law, introduced by Assemblyman A. E. Lee, of Lockport, N. Y., has been referred back to the committee on general laws, after having once been reported favorably from that committee. Mr. Lee's amendment which would compel automobilists to reduce the speed of their cars to six miles an hour when approaching and passing horses if they appear restive or frightened, is as follows:

"A person operating a motor vehicle or motorcycle or motor bicycle shall, upon meeting a person, or persons, riding, leading or driving a horse or horses or other draft animals, when within twenty rods of such horse or horses or other draft animals, reduce the speed of such motor vehicle, motorcycle or motor bicycle to a rate not greater than one mile in six minutes, and if such horse or horses or other draft animals shall appear restive or frightened, bring such motor vehicle, cycle or bicycle to a full stop at the distance of ten rods from such restive horse or horses or other draft animals, unless such person or persons riding, leading or driving such horse or horses or other draft animals shall give his consent not to so stop by voice, nod of head, or wave of the hand, and, if traveling in the opposite direction, remain stationary so long as may be reasonable to allow such horse or animal to pass, and, if traveling in the same direction, use reasonable caution in thereafter passing such horse or animal; provided that, in case such horse or animal appears badly frightened, or the person operating such motor vehicle is requested to do so, such person shall cause the motor of such vehicle, cycle or bicycle to cease running so long as shall be reasonably necessary to prevent accident and insure the safety of others."

Gets \$250 for Nervous Horse.

Because one of the Pioneer coach horses was run into by an automobile belonging to St. John Wood, and developed "nervous prostration" as a result of the accident, Reginald Rives, who owned the horse, got a verdict in the New York City Court, Tuesday, for \$250 against Wood. The complainant had a coaching expert and half a dozen veterinary surgeons and equine psychologists at the court to prove that after the accident the "horse seemed to be always thinking of the automobile and was as timid as a woman," and as the defendant was more conversant with gasoline engines than horse diseases, and could not therefore disprove the allegation, the jury gave a verdict for the full amount, \$250. Wood, however, will appeal.

Oldfield Begins the Season.

Barney Oldfield was the stellar attraction at the automobile race meet that attracted more than 2,000 spectators to the old Piedmont race track at Atlanta, Ga., on Thursday afternoon last, 22d inst. The chief event was the match race between Oldfield and Paul Albert, best two heats in three at three miles from a standing start. The green-shirted driver won both with ease and was accordingly given a great ovation by the Atlantans, who like fast going of any description. The Peerless driver also gave a two-mile exhibition in 2:35. The summaries:

Three miles for Cadillac cars—J. B. Connally, first; Milton Elliott, second. Time, 6:21 $\frac{3}{4}$.

Two miles start and stop novelty race—Barney Oldfield (Peerless), first; William Gilbert (Cadillac), second. Time, 6:31.

Three-mile match race between Barney Oldfield and Paul Albert—First heat—Oldfield, first; Albert, second. Time, 4:15. Second heat—Oldfield, first; Albert, second. Time, 4:26 $\frac{3}{4}$.

Three-mile handicap, free-for-all—Joseph Lander (Franklin), first; William Gilbert (Cadillac), second. Time, 5:34.

Two miles handicap—Milton Elliott (Cadillac, $\frac{1}{8}$ -mile), first; Joe Lander (Franklin, scratch), second. Time, 3:29 $\frac{3}{4}$.

Two miles against time—Barney Oldfield (Peerless). Time, 2:35.

End of a Vanderbilt Splurge.

For Sale—One 250 horsepower real, brand new automobile. Cost \$15,000 to build. Guaranteed never run, not even for demonstrating purposes. Can be had at a bargain. For particulars apply to Alfred Gwynne Vanderbilt, New York.

Wanted—Position as racing chauffeur by expert who has had charge of the highest power racing car ever built. Technical expert, skilled repairer, moderate remuneration. Speaks French, Italian and English. Address, Paul Sartori, New York.

The advertisements, which were not tendered by the advertisers, but which are timely, may be taken as a sign that the greatest aggregation ever scheduled to perform miracles on the Florida sands, has come to a parting of the ways, and that Mr. Vanderbilt has given up the racing game in disgust.

Quayle Heads State Association.

Oliver O. Quayle, of the Albany Automobile Club, was elected president of the New York State Automobile Association at its annual meeting in Rochester, last Saturday night, 24th inst., to succeed Judge W. H. Hotchkiss, of the Buffalo Automobile Club, who declined a re-election. H. S. Woodworth, of Rochester, was elected vice-president, and Frederick H. Elliott, of Syracuse, secretary-treasurer. The secretary's report showed a membership of seventeen clubs with an individual membership of 2,305.

A. C. A. TO GIVE GOLD CUP

Will be Chief Prize in Two Gallon Test—New System of Scoring in View.

Believing that trophies of value are necessary to stimulate genuine interest in automobile contests, the Board of Governors of the Automobile Club of America have decided to offer for competition a gold cup—the first to be offered in this country. That the offering of prizes of this character will have a salutatory effect upon automobile competition is not to be denied.

The determination to offer a gold cup was due to the suggestion of a special committee, headed by George F. Chamberlin, appointed to devise a series of tests. The event in which the gold prize will be offered will be a "Two Gallon Efficiency and Distance Test," to be held some time in May, the route and date to be decided later by a committee consisting of Mr. Chamberlin, Charles G. Curtis and Dr. Schuyler Skaats Wheeler.

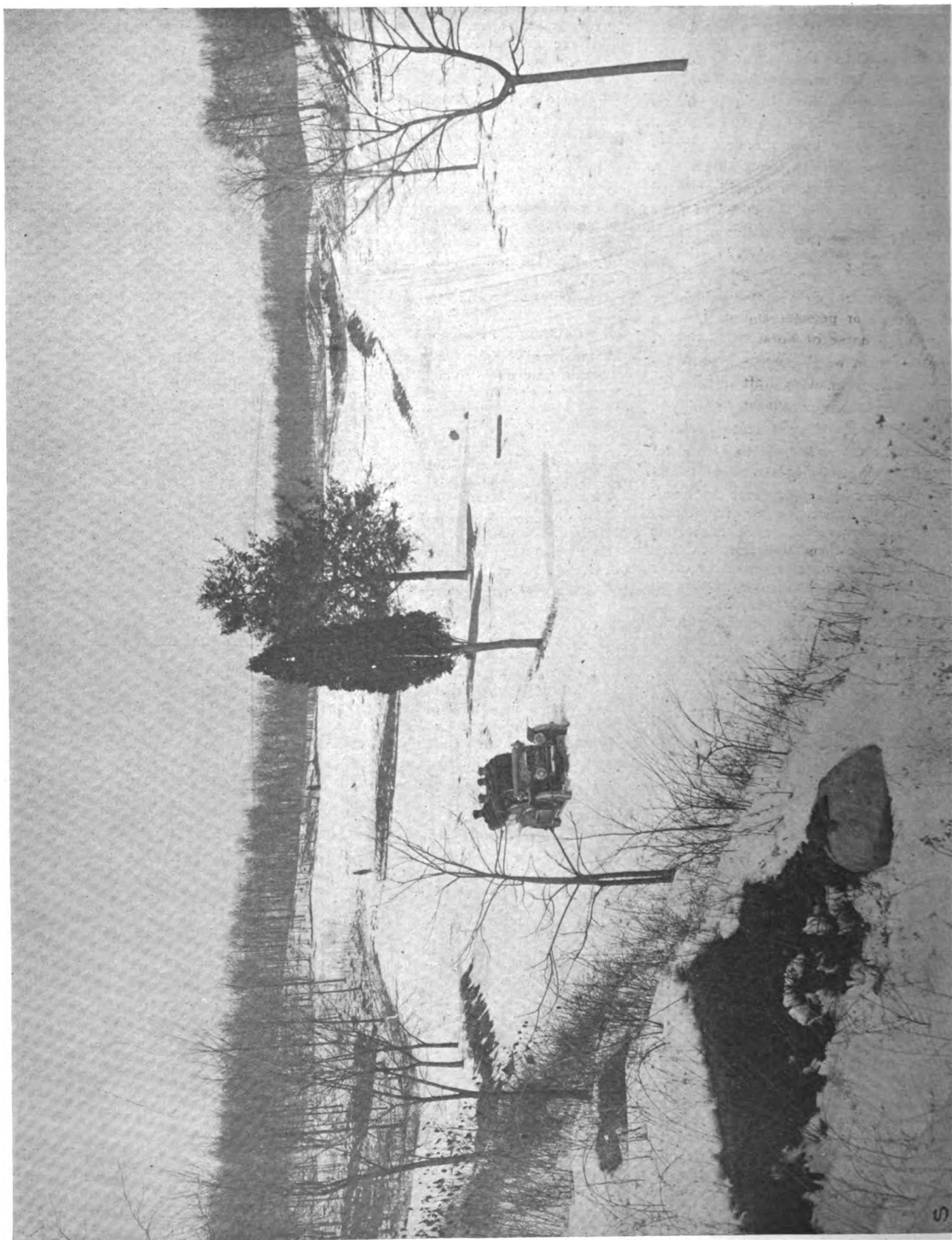
As is implied by its title, the test will be a competition to ascertain the amount of work a car is capable of doing with this amount of fuel, and to give makers an opportunity to prove the efficiency of their cars. That all the competing machines will be run on an equal basis, a system of award is to be devised whereby points will be allowed for weight, cylinder displacement, distance traveled, percentage of efficiency shown and such other factors that may have a direct bearing on the outcome. In addition to the gold cup, the value of which is \$500, a \$100 silver cup and a medal will be offered, besides certificates of efficiency.

American Car Scores in Australia.

J. R. Crooke, of Melbourne, appears to have developed into a sort of automobile "angel" in Australia. He has built a special track for motor racing and at the opening meet on Jan. 29 presented the chief trophy, a \$500 cup. From an American standpoint, the meet was interesting chiefly because the Crooke cup was won by an American car, a ten horsepower Pope-Toledo, driven by H. E. Hall, which in the five miles had a handicap of 2,750 yards. There were fifteen other starters, a twenty-eight horsepower Mercedes being on scratch. Hall also finished second in the "Ladies' Bracelet" five miles handicap. A car balancing test—ten seconds on a see-saw—and a starting and stopping competition, were among the other events decided.

Boston Hill Climb Possible.

Although it has not yet been made public, the Bay State Automobile Association, of Boston, Mass., will probably hold its hill climbing contest on April 19. No course has been selected, but it is thought the climb will take place in Milton.



"When the Fleecy Mantle Covers the Earth."

TWO NEW BILLS IN JERSEY

One Requires Lamps on all Vehicles, the Other also Favorable to Motorists.

Assemblyman Perkins, of Union county, New Jersey, the Republican floor leader in the House and chairman of the Judiciary Committee, which has charge of the Frelinghuysen automobile bill, passed by the Senate of that State, is of the right sort. Mr. Perkins has realized what the Motor World all along has contended, that it is totally unfair to compel automobiles to carry lights at night if horse drawn vehicles are allowed to use the highways without taking precaution for the safety of other users of the road. On Tuesday, Assemblyman Perkins introduced in the House a measure that provides that each and every vehicle used on the public highways of the State of New Jersey shall be equipped with two lamps, one on either side, and that in these a light shall be kept burning brightly from one hour after sunset to one hour before sunrise.

Still another measure made its appearance in the House of Assembly last week. It was introduced by Assemblyman Wright of Passaic, and makes it a misdemeanor for the driver of any vehicle on the public roads of the State not to slow down when requested to do so by a person coming in the opposite direction who shall signify the request with uplifted hand. It also is made a misdemeanor to drive any vehicle at a speed exceeding thirty miles an hour or for a chauffeur or other driver to take out or use any vehicle without the consent of the owner, or to display any false numbers or marks. The penalty for any violation of these regulations is fixed by the bill at a fine of \$500 or sixty days in jail or both, at the discretion of the court. This bill, also, was referred to the Judiciary Committee.

Philadelphia's License Fight up Again.

Philadelphia's all-important question as to whether a city license can be required in addition to the State automobile license was argued before the Supreme Court of Pennsylvania on Friday of last week and held under advisement. It came up on appeal by H. Bartol Brazier and others from the decision of the Common Pleas Court No. 4, in a suit by them against the city, the mayor and other officials, in which the right of a city to exact the payment of a license fee was sustained.

On December 26, 1902, Councils passed an ordinance requiring operators of automobiles to procure a license before they could use the city streets. On April 9, 1905, the Legislature passed an act prohibiting any person from operating an automobile on the highways of the Commonwealth

until a license had been obtained from the State Highway Department. The complainants asked the lower court to decree that the act in question had superseded the ordinance, and asked for an injunction restraining the defendants from enforcing that ordinance. This the lower court refused to do, and this appeal was then taken. Ira Jewell Williams represented the complainants in the argument and Assistant City Solicitors Ernest Lowengrund and James Alcorn appeared for the city. The argument was a purely technical one upon the construction to be put upon the wording of the act.

State Attorney General Carlson also appeared and contended that the State had the exclusive right to the granting of the license.

Must Surmount "Giant Despair."

If the grade of the Wilkes-Barre (Pa.) mountain road over which the hill climbing contest, which will be held in connection with the city's centennial celebration, is as steep as is claimed, there will be some fun in one of the events, at least. It is claimed the incline known as "Giant Despair," averages a grade of twenty-four per cent. One of the events will be for trucks, of any price and power, but whether or not they will be loaded is not stated. The events will be stretched over three days, May 10, 11 and 12, and in all except the free-for-all, the cars must be fully equipped, although mufflers and lamps may be discarded. The Pennsylvania State mounted constabulary will police the course. The card of events embraces the following: Free-for-all, racing and stripped cars; stock cars costing \$2,500 and under; stock cars costing \$5,000 and under; stock cars costing \$8,000 and under, and automobile trucks of any price and power.

The Lady's Two-Cent Car.

Mrs. Rheinhold Faelton, a music teacher, of 215 Huntingdon avenue, Boston, Mass., considers that she made a good investment when she expended two cents in a ticket contest conducted by the Intervale Automobile Club, of Lynn, Mass. There were 10,000 tickets, ranging from two to twenty-five cents, the first one to be drawn winning a 1906 model Stanley steam car. Mrs. Faelton drew a two-cent ticket and thought no more about the matter until she was informed that she had won the car.

Owners Prosecute an Offender.

Last week the newly formed Automobile Owners' Association, of Boston, made good its promise "to prosecute offenders against laws relating to automobiles" when it brought its first case before the Massachusetts Highway Commission. The proceedings resulted in the suspension of Earle G. Greenleaf's license until July 1. The defendant lives in Cambridge, and he was charged by the Association with driving his automobile in a "reckless and dangerous manner."

FOR USE IN WARTIME

British War Department Lays Plans to Obtain Cars Instead of Horses.

As evidence of the present and ultimate value of the automobile for service by war departments in time of war and during manœuvres is the decision of the War Department of Great Britain to discard the horses now kept registered and to substitute motor cars for the purpose. Plans of the scheme are embodied in a letter from the War Office to the Motor Van and Wagon Users' Association respecting the registration of heavy motor vehicles for the service of the country during war and during manœuvres.

"The owner of a heavy motor car," states the letter, "should agree to give the War Department the right to make use of for a time, or to purchase under conditions to be agreed upon, such heavy motor car, or in the case of the owner possessing more than one heavy motor car—either all such cars, or certain specified cars or a proportion of such cars.

"The War Department to pay to the owner for the above right a small sum in respect of each heavy motor car so registered.

"Heavy motor cars so registered to be available for War Department use.

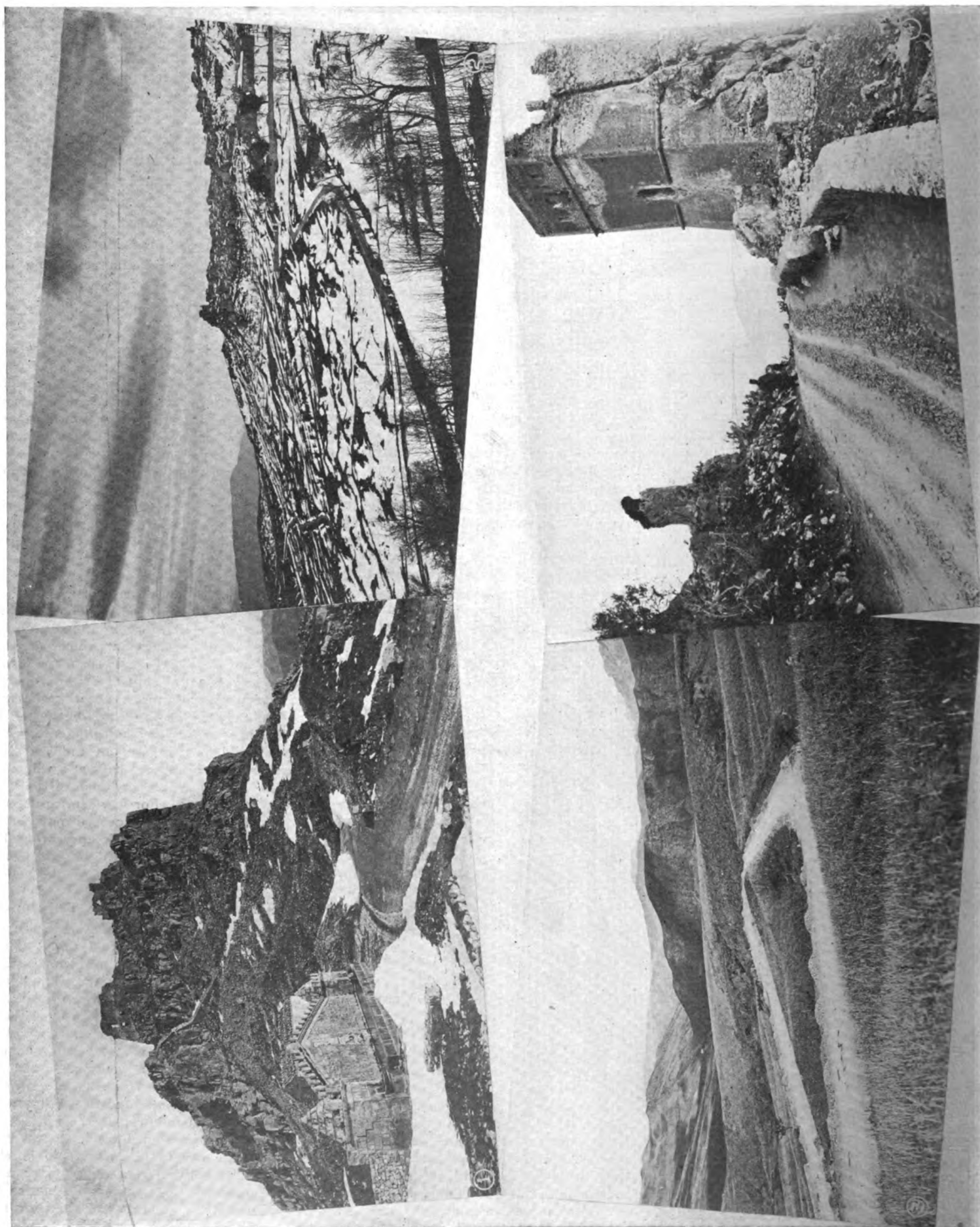
"In time of peace—for manœuvres, when they would be hired for a continuous period not exceeding a maximum number of days in any one year. The price paid for hiring to include the provision of drivers, upkeep of vehicle and all stores except water, fuel and lubricants, and to be per diem,

"In times of war—for home defense, when they would be purchased by the War Department and be bought back at a valuation by the owners upon completion of the War Department's use. For war service abroad, when they would be purchased outright by the War Department. Compensation for disturbance of trade would be considered in any case."

Nassau County Files its Petition.

Evidently the residents of Nassau county, Long Island, know a "good thing" when they see it, and those who made small-sized fortunes last year during the elimination trials of and the Vanderbilt race proper, are not going to let the chance slip by without putting in a petition to have this year's race held over somewhat the same course as last year. Such a petition, signed by about one thousand residents of Nassau county, has been presented to the Board of Supervisors. It follows:

"We, the undersigned residents and citizens of the county of Nassau, do hereby respectfully petition your board to request the Automobile Association of America to hold its automobile test and race for the year 1906 over the course laid out by your board within the county in the year 1905."



Views Showing the Rugged and Tortuous Nature of the Italian Course for the Florio Cup Contest of 1906.

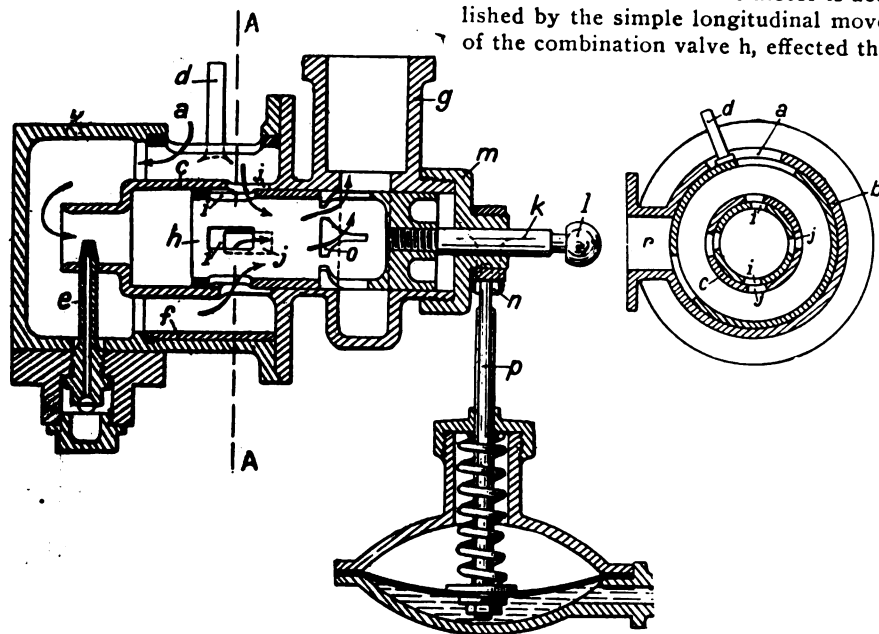
NEW IDEAS IN CARBURETTERS

Bavary Controls Even Temperature of Air and Obtains Other Useful Effects.

Probably no portion of the field of motor car design is undergoing more rapid and significant changes than that of carburation. The self-regulating type is fast becoming an essential in any machine, and the numerous ways in which the desired result is being secured, at least to an approximate degree, is breeding a great variety of devices, all working toward the same end. The most desirable object, of course, is to have the device so contrived that the quality of the mixture will be adapted to the needs

where, and that coming through r being taken from a jacket on the engine exhaust. A rotary valve within this jacket, actuated by the hand lever d is adapted to alter the air inlet to the desired temperature, in the manner clearly shown by the sectional view. While the main portion of the air passes through the neck of the mixing tube, a portion of it is passed into the tube midway of its length, serving as a dilutant for the mixture already forming there, the ports i and j in the chamber and throttle valve being formed for this purpose. At the outer end of the throttle, the openings o are formed, which are extended in triangular form to allow for a gradual throttling effect with equal displacements of the valve.

The hand control of the motor is accomplished by the simple longitudinal movement of the combination valve h, effected through



of the motor at any speed, and irrespective of the degree of throttling. And since the desired quality is entirely dependent on the speed, it is evident that some sort of governing device taking its actuation from the motor, is best suited to the work. Such an arrangement in most novel form, has just been brought out in France, in the Bavary carburetor, which is the invention of M. Bavary, of Irigny.

In this device, the regulation of the mixture and the control of the gas is effected jointly by a single piston valve having a combined rotary and longitudinal motion, the one under the control of a diaphragm governor, and the other handled at the will of the operator quite independently of it.

The fuel, entering the mixing chamber from an ordinary float feed chamber through the jet e, is entrained by a portion of air in the reduced neck of the tube c, which carries in its main portion the combination valve h, admitting the final mixture to the engine through appropriate ports and the intake pipe g. The air supply is drawn through ports a and r, in an outer jacket b, the increment passing through the port a being drawn from the outer atmos-

phere, and that coming through r being taken from a jacket on the engine exhaust. The regulation of the air alone, on the other hand, is secured by partially rotating the valve h thereby opening or closing the ports i by causing them to overlap more or less the corresponding openings j in the sleeve c. This is accomplished through the medium of a yoke taking hold of the stem k which is made square for the purpose, the yoke having a seating on a shoulder of the cap m affixed to the body of the device. The yoke is actuated by a rod p fastened to a diaphragm governor retained in position by a spring, and being depressed by the tension of the circulating water of the cooling system. Thus the position of the combination valve in respect to the amount of opening in the ports i and j, is solely dependent on the speed of the motor.

Thus, for any position of the throttle longitudinally, the governor will automatically adjust the port opening of the auxiliary inlet to give the maximum speed, the action of the diaphragm governor being very sensitive, as is well known.

IF THE BRAKES SHOULD BREAK

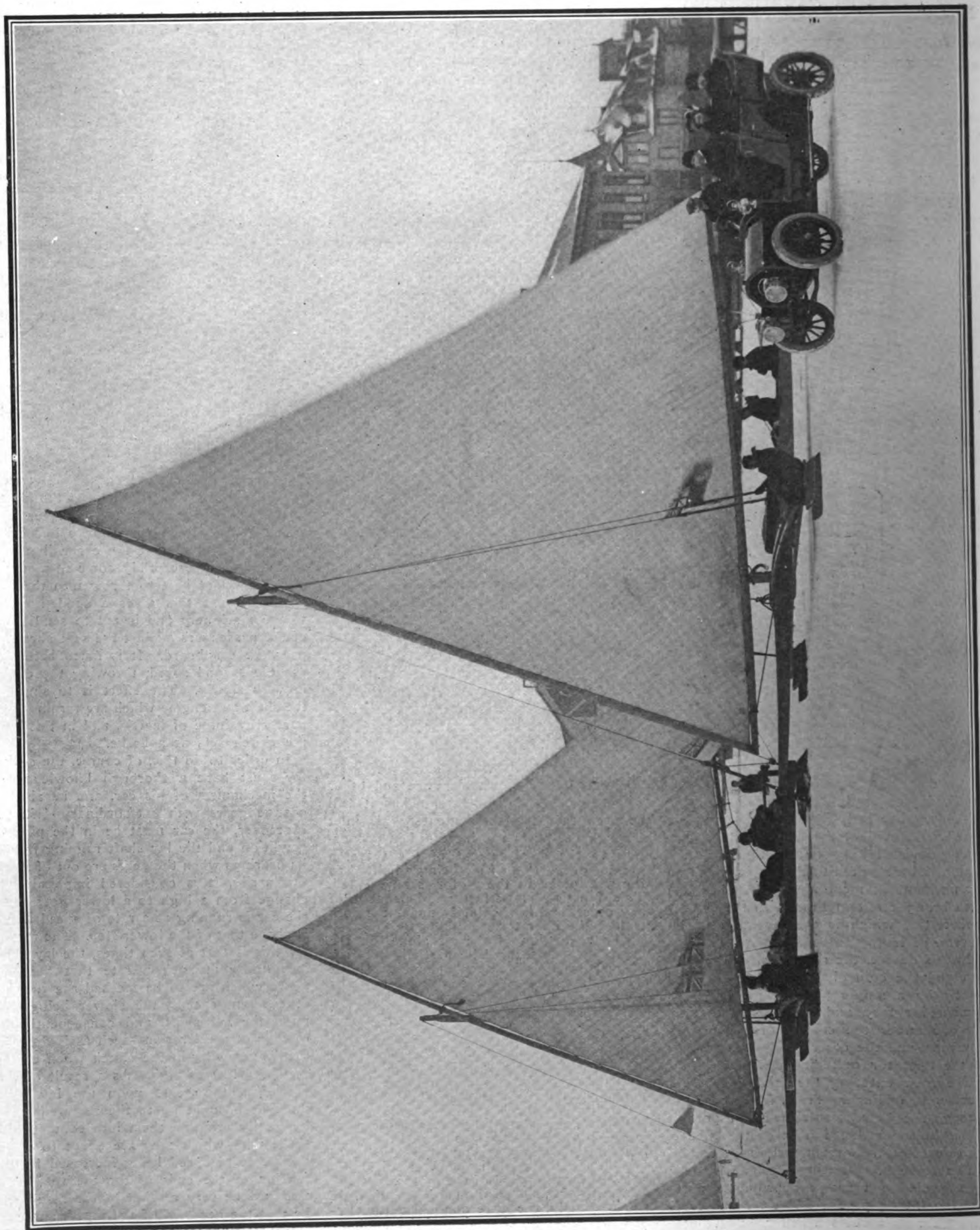
How the Car Can be Stopped in Event of Such an Unlikely Accident.

Despite the efficiency of the braking system applied to the majority of the cars turned out just at present, not a few drivers have an inbred horror of the possibility of the brakes giving way at a critical time with disastrous results to the occupants of the car. And although this is probably one of the most remote of all the possible mishaps which might befall a car upon the open road, still it is one which it is well to be able to guard against.

J. D. Maxwell, constructor of the well known Maxwell car, is authority for the following method of procedure when in such straits:

"If the brakes go wrong, the best way to stop a car going at full speed is to first withdraw the clutch. The next thing to do is to change the transmission to the second speed, and following this, the electricity should be switched off. Then, as the fourth step in the process, if the operator will throw in the clutch very slowly and carefully, he will find that the car will gently and almost imperceptibly come to a standstill. It is not best to throw into the low speed because this gives a sudden shock to the machinery and is apt to send some of the passengers against the seat ahead or over the dashboard. It is much better to use the second speed, throwing the clutch in very slowly. The effect is to shut off the shaft and engine which are turning over purely by force of inertia, and in this case the clutch acts as a brake."

In order to do this, of course, the operator must have a thorough knowledge of the mechanism of his car, and be able to change gears with extraordinary deftness. Moreover, the car must be in the pink of condition and the lay shaft running free in its bearings when the gears are out of mesh. Ordinarily, it is considered impossible to change from a high to a lower gear when the car is running at a rate of speed which is above that of the lower step. The reason for this is that at such times, the lay shaft is running at such a rate that the two gears which are to be meshed are running at different speeds, the slower being that upon the lay shaft, and consequently incapable of acceleration—such as is done by gently throwing in the clutch when changing from low to high. As a result of this condition, the gears upon the lay shaft must be brought up to the required speed by gently bringing them into contact with those with which they are about to mesh, their rate of speed being increased by the friction of the ends of the teeth. Unless this is done very cautiously, the result will be that the gears will be stripped, and considerable unnecessary damage done to the mechanism. With due skill, however, the method is perfectly possible.



William Hyslop, of Toronto, Ready for a Brush with Ice Yachts.

BROKAW ON IGNITION ILLS

Goes Deep into the Subject and Illustrates and Explains Many Causes of Trouble.

With the aid of a whole tableful of apparatus that included at least one sample of almost every known method of ignition with its accessories, Clarence B. Brokaw, who is principal of the New York Y. M. C. A. automobile school, lectured on the subject of ignition at the Automobile Club of America, on Tuesday evening last.

"As every one of you gentlemen has had more or less experience with the automobile it will hardly be necessary for me to go into the theory of ignition," said Mr. Brokaw. "Moreover, I intend this to be a thoroughly practical talk, more on the subject of ignition troubles; how to recognize them and how to remedy them, than a mere outline of the various methods. There are many so-called ignition systems, but when examined it will be found that all can be divided into two classes, the make and break and the jump spark.

"Each system has its advantages and disadvantages and each has its advocates, some of who are entirely blind to the defects of the system to which they pin their faith and can see no good in any other. But there are sufficient good points in each to recommend it and the greatest essential is a thorough understanding of its workings and its shortcomings or the derangements that are liable to befall it in practice. The chief claims of the make and break system are simplicity and the great size and heat of the spark produced in contrast with the smaller spark of the jump system. And more than this is the reliability of the hammer and anvil plug, contend the supporters of this system. 'This plug will never short circuit through carbonization because the electrodes are so far apart and it cannot foul because, no matter how much oil there may be in the cylinder, the blow of the hammer and the hot flash that follows it will burn it away,' they will tell you.

"It is easy to see that there is considerable foundation for the claim of producing a hotter spark," continued Mr. Brokaw, illustrating this point with a set of dry cells and a primary coil. "The flash is almost blinding. Of course, it is not so great inside the cylinder under compression. There is a point I wish to bring out here, that invariably comes up in the questions of students. Why does the spark occur on the making of the circuit in the jump spark system and on the breaking with the make and break? It occurs on the break in the latter case for this reason. When the circuit is closed it requires an appreciable time to saturate this simple wound coil. Now this coil is wound so as to be highly self-inductive; it is composed of a heavy winding of comparatively coarse wire on a very substantial core consisting of a bundle of soft iron wire, each strand of which is separately shellacked before being bundled.

This permits of its being magnetized and demagnetized very quickly. And when this is done suddenly as by the breaking of the circuit at the plug, it not only delivers the current sent into it from the batteries, but adds to it and propels it by this force of self-induction which results in the greatly increased size of the spark.

"To get back to the plug, warm supporters of this system will tell you that it is proof against carbonization on account of the great distance between the points, but just here where this insulated leg enters the metal support," illustrating with one of the plugs, "there is a very small space indeed between the two and it requires but a very little carbon at this point to cause trouble. There is another drawback to the system in that the short circuiting of a single plug stops the engine and thus makes it difficult to locate the cause of the trouble, whereas with the jump spark, the engine may be run on any one cylinder at a time without interfering with the others. There is still greater puzzle brought about in this system by faulty timing, causing one of the plugs to prevent another from sparking. This may be illustrated by sketching the system on the board. For instance, cylinder number three follows number one in the order of firing. In order to obtain a spark with this system the circuit must first be made and then broken, and it will be clear that if the circuit in plug number three is made before it is broken in number one, there will be no spark in the latter. Thus one cylinder may rob the other of its spark and the trouble is more or less difficult to locate.

"It depends entirely upon the timing of the igniters; one must have broken the circuit before the other makes it or one must miss, and this brings me to the question of the time element in ignition—without a doubt the most important factor of the problem. Power depends almost entirely upon the rate of combustion and if the flame in the explosive mixture can be propagated rapidly enough to cause the greatest effort to take place before the piston has traveled an appreciable portion of its stroke downward, there is that much gained. That is, the greatest force of the explosion should take place when compression is at its greatest and not after a considerable portion of it has been released. This explains in a word why the spark is advanced and retarded and also why when the spark is advanced too far an engine begins to pound—the piston begins to feel the force of the explosion before it has passed the dead center and the two forces—the stored away energy of the flywheel and that of the explosion, are conflicting. It also explains why with the spark well retarded the engine may be made to run very slowly and with scarcely any power. If we could devise a system by which the greatest force of the explosion could be propagated instantaneously it would mean a tremendous gain of power, and as an approach to this end I very strongly favor a

system of double ignition—that is, two plugs firing simultaneously in the same cylinder. Even if one lags momentarily there will be a gain.

"To conclude with the make and break system, it is easy to see why it was not successful earlier. There was no adequate source of current supply. It was tried with dry cells and before a car had run much more than thirty miles the batteries ceased to give any current. They became polarized and most of us who were not aware of this peculiarity of the dry cell, doubtless threw many a good battery away and bought a new one, although there was practically nothing the matter with the one that was discarded. The working of every primary generates hydrogen and the dry cell is no exception; the bubbles of hydrogen gas attach themselves to the negative or carbon element and when they have completely covered its surface the cell ceases to act—the gas insulates the carbon from the rest of the cell for the time being. If the circuit be opened, the bubbles are dissipated and as soon as they have disappeared, the cell is as good as ever. But no primary cell could ever be successful with the make and break igniter—the demand for current is too great. The small dynamo and the storage battery were then designed in a manner fitted to use on the car, so that the make and break system was discarded and not taken up again until the low tension magneto was adopted as a source of current, but before taking up the latter, let me indicate one other shortcoming of the hammer and anvil plug. This is its tendency to wear away the contact points and sometimes to break them off.

"As the spark will burn and oxide iron or steel very readily, the plug will not function without special contact surfaces. Platinum is, of course, the best for this purpose, but as a comparatively large piece is required it is far too expensive and nickel is employed for the purpose. If you are ever caught on the road with a worn out plug and have no replacement, you can make a repair by soldering a piece of silver on the piece. By far the best flux to use for this purpose is cyanide of potassium; it is a deadly poison and should be carefully handled. There are times when it is justifiable to mutilate Uncle Sam's coin, so that failing to have anything else, a dime will serve admirably. Cut it to the size required and use as much cyanide as there is silver. A blow torch is the only other requisite so that none of the tools or materials will be difficult to obtain. Difficulty will be experienced if borax is used as a flux for it will form into balls between the silver and the iron and prevent the formation of the joint.

"Coming to the magneto, I wish to call attention to a point that engenders confusion with many in this connection and that is the distinction between the high and the low tension magneto. All low tension magnetos, such as are used on the Locomobile, the Cleveland, the Brasier and other

foreign cars, are the same, so there is difficulty there, but all high tension magnetos are not, strictly speaking, of that kind. For instance, we have the Remy and the Eisemann high tension magnetos and the Lacoste and Simms-Bosch high tension magnetos and they differ very materially. The Remy and the Eisemann are really low tension magnetos, but they are used with a coil to convert the current into one of high tension and they send it to the cylinders through a high tension distributor. The Lacoste and the Simms-Bosch are technically speaking, high tension magnetos in that they actually produce a high tension current. Here is the difference. This armature 'removing one from a low tension magneto on the table to illustrate,' has but one simple winding, one end of which is grounded and the other led out through the hollow shaft. The current generated is sent through a non-vibrating induction coil of the usual type, just as if any other source of current were employed. In such a machine as the Lacoste this primary generating winding and the secondary winding are both on the same core and are connected with a condenser. The machine is practically self-contained—it generates the current, converts it into one of high tension and automatically distributes it. It has both its advantages and its drawbacks and I will indicate some of the latter in connection with coils.

"Another essential element in which such magnetos as the Remy differ from the ordinary low tension type, is in embodying a distributor which is in the high tension branch of the circuit—apt to give trouble, you will immediately conclude, because a high tension current is almost impossible to confine. And in a distributor of this kind (selecting one from a number on the table) in which there is a metallic rubbing contact there would be trouble, for the invisible metallic dust caused by this rubbing of the metal surfaces would, in conjunction with a little moisture and sometimes without it, provide a path for the current of 30,000 to 40,000 volts that would convert the distributor into a blaze of fireworks. But you will notice in this magneto here (taking the distributor cover off a Remy) there is no rubbing contact; this distributor finger closely approaches but does not touch any of the points—the spark must jump to it as there is a gap of a fraction of an inch. This finger is made wedge shaped so that the spark may be advanced or retarded.

"How does the spark occur in both the primary winding and at the secondary terminals simultaneously and how may its occurrence be retarded or advanced without disturbing this concurrence? is a question very frequently asked. I can best illustrate it with this low tension magneto here. When the armature is in this position or straight across the poles, there is a complete magnetic circuit and the voltage is at its lowest—the lines of force are not being cut. But in this position (giving it

a quarter turn to the right) the maximum number of lines of force are being cut and the voltage is at its very greatest value. Here, then, is where it is ordinarily made in the cylinder. If the machine be turning to the right, and retardation is desired, causing it to occur an eighth of a revolution sooner will give a position where it is approaching the maximum and for advance, one where it is receding from the maximum, so that within these limits the spark may occur sooner or later and still obtain good results. I might interpolate right here that the low tension magneto is timed in the same manner, although it is not necessary as it may be geared to spin at a higher rate of speed than the engine and thus produce a continuous alternating current, but this is not generally done.

"It will be apparent from the foregoing explanation that changing the time of occurrence causes a loss in the value of the spark and in order to overcome this, the builders of the Remy have introduced what I consider to be an improvement of great merit. I do not hold a brief for any of the many classes of ignition apparatus you see here, nor is it my purpose to condemn any of them, merely to point out to you what I have found to be their advantages and drawbacks in the course of an extended experience that has covered all of them. The improvement I refer to is the adoption of a set of shifting pole pieces. You will note that the pole pieces of this low tension magneto are fast to the poles of the magnets; this is also the case with this Remy machine, but in addition there is a second set of pole pieces encircling the armature and which may be turned about it to advance or retard the spark without detracting from the value of the current on that account. Within the limits of the occurrence of maximum voltage in the armature that may be governed by this means, the passing of the distributor finger under one of the secondary contacts is also provided for by making it wedge shaped as I have already indicated. Thus the distributor works synchronously with the armature as they are geared by one to two pinions and the magneto is geared to the engine so that its speed bears a fixed relation to that of the latter. As there is only one primary connection to the armature, the other being grounded, always look for trouble on this machine at its collector brush which is at the end of the shaft—a little dirt or oil there is often the cause of a stoppage that is most frequently attributed to something more serious and the machine condemned on that account.

"This brings me to the subject of ground connections and it is my firm belief that if the grounded connection were discarded entirely or more attention paid to it, there would be far less ignition trouble. When one side of a circuit is grounded the current must find its way back to its source through the channel of least resistance; through rivets, joints and sometimes through bearings—dirt may have worked

into either of the former and there is always oil in the latter. The better the bearing the poorer contact will it make with the shaft and the more oil will there be between them. All this makes it difficult for the current to pass, except in the case of the high tension current which will penetrate or bridge most obstacles of this character. But such is not the case with the low tension current and I would recommend that wherever it can be done conveniently that ground wires be carried as near as possible to the other branch of the circuit and the metal drilled and tapped to insure a firm connection.

"Taking up the battery, the matter of connections is one that must be looked to carefully and it is something that constitutes a drawback to the use of the dry cell—there are so many connections, so many places to cause trouble. Rattling and shaking may loosen any of them and one is sufficient to put the system out of order. The accumulator is superior in this respect as well as many others—in fact, I consider it the ideal battery. But in either case, two sets should be carried, one as a reserve and in the case of the dry cells they should be used alternately as one displays signs of weakness. This should not be done with the storage battery—one should be used up keeping the other fresh and the reserve not called into action until the other is dead; when it only shows 1.7 volts on the voltmeter it is time to recharge it or it will be ruined. Never under any circumstances short circuit a storage battery to test it—the flow of current is so great that it will burn up almost any small piece of metal, even this screwdriver I have in my hand would melt instantaneously if dropped across the terminals of this ignition set. Always use a voltmeter and test each cell separately and always use an ammeter on dry cells the same way—a voltmeter reading means nothing with the latter, as they give 1.5 volts new or old. It is a wise precaution to always test dry cells when buying them, so as not to have palmed off on one some that have been on the shelf for a year or more. Do not take them unless they show 22 to 25 amperes on test.

At the request of the audience, Mr. Brokaw continued in order to touch on the dynamo, although the time allowed had been greatly exceeded. "So far as my experience goes I have found the dynamo unsatisfactory in practice for many reasons, chief of which is the short circuiting at the brushes. With regard to the Apple system of generator and storage cells and an automatic cut out, I have had no personal experience, but from using it in demonstrating before a class I should think it would work well. In conclusion, I may say that I firmly believe that the high tension system of the Eisemann or Remy type employing a low tension magneto and synchronous distribution with one simple coil will eventually supersede most others for pleasure car use."

WHAT FLUSTERS ENGINEERS

How Popularity of Gasolene Motor Confounds Them—Benefits of Both Powers.

That the application of the steam engine to the work of the automobile is not receiving a greater amount of attention from the bulk of the industry, is a matter of universal comment by mechanical engineers outside its confines. To them, the adaptation of the gasolene motor to the work is unmechanical in the extreme and despite its rapid growth and general serviceability at the present time, it still presents a species of crudity which serves to make the steam car outclass it at every turn. Accustomed to considering results from a general point of view, the greater mass of apparatus required by the steam plant when contrasted with that of the internal combustion motor, is but a mere detail, the desideratum being to secure an even turning movement, and a flexibility of control at all costs. And the thermal efficiency of the two, yielding by comparison a marked advantage on the side of the latter, is not of great moment, when the cost of a single machine is to be taken into account.

But apart from the more intimate technical considerations, the fact remains, that for the uses of the pleasure machine, the gasolene engine yields decidedly successful results, requires, if anything, less of skill in operation, and less of labor in maintenance, and is eminently satisfactory from the view point of its ready response in service under normal conditions. On the other hand, it is not capable of carrying a great amount of overload, is not capable of starting under load, and is in many ways unsuited for the work for which it has been developed.

Owing to the great variation in the load upon the motor, it is essential that the power plant of the motor car be extremely flexible. In the gasolene machine, this is accomplished by a combination of throttle control and alteration of the gear reduction between the motor and the driving wheels. In the steam car, on the other hand, this is done by throttling, where simple reduction of speed is required, but where additional power is needed, the result must be obtained by increasing the rate of delivery of steam from the boiler. In large power plants, this can be done to a certain degree at least temporarily, by drawing on the reserve supply held in the steam space, but in the motor vehicle, where "economy is the watchword," this can be accomplished only by forcing the boiler, that is to say, by furnishing it with more heat, and feeding its water supply more rapidly.

In the small tubular boilers which were commonly used for the work a few years ago, the steam space being very small, and the heating surface very great, a consider-

able degree of flexibility was assured, but as a result, most careful and skillful handling was required to prevent the lowering of the water level to the danger point. Then came the types of flash and semi-flash generators, in which the flow of feed water was made strictly proportional to the flow of steam, and by the reduction in the volume of both retained in the boiler at any given time, the sensitiveness of the apparatus was increased to a marked extent. Finally, the use of superheated steam was perfected to a point which, in at least one instance, exceeds that of common practice in steam engineering anywhere.

The particular gain to be had by continuing to heat the water gas after it has been rendered free from water, is not at first apparent except to the steam engineer, but its real intent can be understood from the statement that every unit of heat thus infused into any given volume of dry steam, and retained by it, is available for conversion into mechanical energy in the motor when it is released. So that by augmenting the heat contents of any volume of the vapor, its capacity for producing work is increased in a certain proportionate degree. Thus the use of superheated steam in a power plant having a small storage space, has the effect of increasing its capacity for work, and is wholly comparable to the use of high tension currents in the distribution of electrical energy, the analogy being very close in many respects.

The internal combustion motor, on the other hand, notwithstanding its great practical utility, has the drawback of being inflexible, and of generating its power only at fixed rates of speed which, at best, are not variable throughout a very great range. Thus, for starting, the friction clutch becomes an essential, and for obtaining different rates of speed, the variable transmission gearing is brought into requisition, both of them, admittedly unmechanical from the standpoint of the engineer. Nevertheless, it has attained its present position through its ready response, when furnished with these two essentials, its compactness and its general simplicity. Despite its apparent success, however, it is yet greatly handicapped by its lack of range and the fact that its full power cannot be directly applied in starting the vehicle.

Both types require a certain degree of skill in their operation which is only to be gained by experience. In fuel consumption, the gasolene machine has the lead at present, and it likely to continue to have, unless a great improvement in burner and generator efficiencies is brought about. Certainly, the steam car involves the use of a greater amount of apparatus than the other. Yet considering all these facts, the use of the steam machine for purposes where mechanical efficiency and general utility as well as the conditions of even driving torque and concentrated, positively communicated effort at starting are concerned, as in commercial vehicles, is not to be undervalued.

ABOUT THERMAL EFFICIENCY

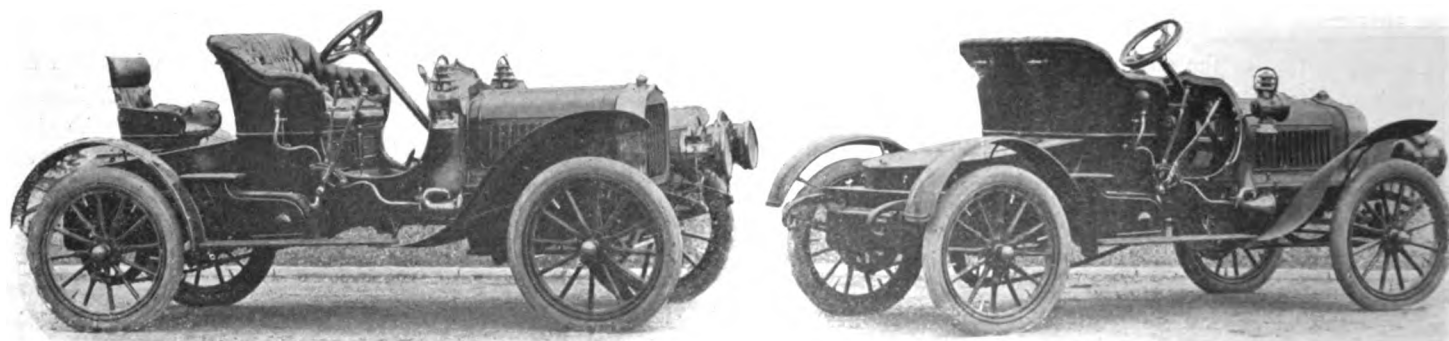
But Small Portion of it Utilized—Where and how Loss Occurs.

In a paper read before the Western Society of Engineers recently, C. E. Sargent analyzes in detail the losses that take place in the process of converting the latent energy in gas or gasolene into useful work. Gasolene or gasolene vapor is credited with 690 British thermal units to the cubic foot, while illuminating gas or what is known as water gas is rated at 710, so that in speaking of the efficiency of the gas engine, percentages and formulae apply equally to the engine using a liquid fuel. A British thermal unit is the quantity of heat required to raise one pound of water through a temperature of one degree Fahrenheit. These standards of heat production have long been well settled and represent the maximum theoretical value of the fuels. The difference between this and the actual amount of work produced represents loss and the ratio one bears to the other is the efficiency and in this connection Mr. Sargent's summing up of the causes and percentages of loss is of interest.

Efficiency depends on a number of factors and on none more strongly than on compression and the character of fuel. Generally speaking, the higher the compression within certain well defined limits, the greater the amount of power developed. The pressure at which premature ignition takes place is the chief of these restrictions. With the theoretically correct mixture, gasolene cannot be compressed much in excess of 100 pounds to the square inch without danger of self ignition, but natural gas will stand a pressure of 150 pounds, alcohol 190 pounds and producer gas about 200 pounds and still require to be ignited by some outside means, so that the influence of the character of the fuel in determining the degree of efficiency will be apparent.

Into what proportions then is the heat generated in the cylinder by the combustion of the fuel divided; what part of it is actually utilized and what part represents loss? The percentage that is utilized in the well designed gas or gasolene engine will not often exceed twenty-five per cent. This represents its thermal efficiency. The question then arises, What becomes of the remainder? About forty per cent. is absorbed by the water jacket and about thirty-five per cent. is lost by radiation and through the exhaust pipe. The importance of the factor of compression in determining efficiency is more than ever apparent when it is taken into consideration that other things being equal the amount of heat lost in the water jacket depends upon the surface exposed. The higher the compression the smaller will be the amount of cooled surface surrounding the compressed charge,

How the Folding Seat is Employed on the Pope-Toledo.



There is now a Pope-Toledo runabout, Type X, as it is officially styled. It is a powerful one, of course, 20-24 horsepower, to be exact, and withal substantial and stylish, as the accompanying illustrations

serve to show. This new model has just made its appearance and like most of the big runabouts, it is designed to seat three persons. The seat for the mechanic or extra passenger is arranged in the rear and

is of the "lift" or "disappearing" type. When not in use it may be folded inward and that the idea is skillfully executed the pictures bear witness. It imparts an unusually well finished appearance.

and as the loss from this cause represents the largest single item it is evident that improvement should primarily be directed to saving at this point. An engine in which the charge is compressed to 100 pounds to the square inch before being exploded will consume but an eighth of the fuel required by one working at a pressure of but twelve pounds to the square inch above atmospheric, to develop the same power.

In considering the heat which is lost by way of exhaust, it must be borne in mind that the reactions during combustion tend to raise the temperature tremendously, and for every degree of rise, there is a corresponding increase of $1/490$ of the volume of the gases even though with the proper mixture the combustion is not instantaneous.

If a full cylinder of combustible mixture is compressed from atmospheric pressure and temperature and heated further by chemical action, then when the volume is constant the pressure is increased. But neither the temperature nor the volume in the combustion chamber of the engine remain constant. From the moment the inlet valve closes, the operation is that of compression until just before or at the dead center, according to the timing of the ignition, the spark occurs and the reverse takes place. From this point to the end of the stroke expansion is taking place and in spite of the fact that it is extremely rapid and is accompanied by an enormous drop in temperature, there is still sufficient expanding force and heat left in the exploded charge to require a muffler or sound deadening device of some kind to absorb it in order to overcome the objectionable noise otherwise created by this lost power.

Following steam engineering practice, compounding has been tried with a view to reducing this large percentage of loss in the exhaust and while it has met with more or less success, the gain does not appear to be sufficiently great to offset the added first cost. The working fluid of the internal combustion engine, unlike steam, is

practically a perfect gas, so that the efficiency of the gas engine may be increased if the burnt gases may be expanded to a greater volume than before compression. But as in a steam engine, there is a limit to the degree of expansion desirable. When the pressure equals the power required to overcome the friction, a further expansion reduces the efficiency of the engine. Hence, the decrease in efficiency as the load is lightened. In a single expansion steam engine it has been found that a terminal pressure of about four pounds above atmospheric is the most efficient at which to effectuate the release, while owing to the somewhat lower mechanical efficiency of the gas engine a terminal pressure of from six to eight pounds to the square inch represents the greatest economy. But at present this is not even approached by the average automobile motor from which the exhaust issues at a pressure varying from ten to thirty pounds to the square inch, according to design and operation and probably it is seldom that the former of these extremes is reached.

France Offers Big Purses for Alcohol.

Despite the extended chemical researches that have been carried out by some of the world's most skilled investigators over a period of years, no approach seems to have been made to the discovery of an entirely satisfactory substance that may be employed to denature alcohol in order that it may be used as a fuel for the internal combustion engine. Many have been found and are used in large quantities in such countries as Germany, but the problem remains unsolved nevertheless. Wood or methyl alcohol is largely used in this connection for other purposes, but it would be difficult to select a substance worse fitted for use in the motor. It not only tends to corrode the metal and destroy the fine polish of the cylinder walls, but also burns on the valves in a crystalline deposit like brown sugar that is so hard as to make it

difficult to chip off with a chisel. Some years ago the Russian government offered a substantial prize for the discovery of a suitable system for denaturing alcohol, but so far as known it never has been claimed.

Now the French government offers two prizes, one of \$4,000 for a substance, which, while cheaper than any of those now employed, will prevent any possibility of fraud, and another of \$10,000 for the invention of a system which will permit of alcohol being used for lighting purposes under the same conditions as gasoline. The nature of the problem that confronts the chemist or inventor who would attach either of the prizes only becomes apparent upon studying the conditions. First and foremost, the denaturant must have a smell and taste which will make the spirit unfit to drink and therefore such substances as rosmarin, aspic, laurel, essence of thyme and others of the kind must be rejected. The smell, however, must not be so strong as to prevent the use of alcohol for domestic and industrial purposes, wherefore acetylene and other strong smelling ingredients are struck out of the list. Soluble denaturants which leave deposits, such as salt, sulphate of soda, alum, picric acid, tobacco juice and a variety of chemical and other ingredients naturally can not be considered. It must not be more or less volatile than the alcohol itself, and thus allow of its being eliminated by distillation. In this category a whole list of ingredients is given from ether to gasoline and turpentine. Such substances as ammonia and sulphuric acid are eliminated because they act on the metal, and a long list of poisons is also rejected. It must be economical and be a commercial product. If after seeing what he cannot use the chemist is able to hit upon a denaturant which will exactly fulfil the requirements, he will have fully earned the prize, and will have conferred an inestimable boon upon the agricultural industry by preparing the way for the almost universal employment of alcohol.

TWINS IN SOLID TIRES

How they are Worked out and the Benefits of that Form of Construction.

It develops that the Diamond Rubber Company, of Akron, Ohio, is now building its new wire mesh base tire in the twin construction, which is something entirely novel in the field. The principle of the wire mesh base, which was brought out for the first time during the New York show season in the single tire type, was at that time exclusively dealt with in the columns of the Motor World, but its further application to the twin type seems to merit some more extended description.

Contrary to the practice in constructing other types of heavy vehicle tire, the wire mesh base tires are not mere enlargements of the forms used on buggy wheels, but are designed through and through for the especial work which they are intended to meet. The relation of the three essential portions of the solid tire—that is to say, the tread, base, and fastening—having been proportioned with exceptional care. In the making, a strip of wire mesh is wound about a drum which is equal in diameter to the tire which is being formed, the layer being built up until the required thickness is secured, three or four layers usually being required. The unvulcanized rubber is then applied and forced into and through the mesh until it is absolutely and evenly incorporated into it, after which the vulcanizing process serves to secure its permanence. By this means, the base and tread are positively incorporated into a single fabric, and the fastening, which is a part of the base, is thus made integral with the structure of the tread, and the stresses of internal friction in this way are eliminated.

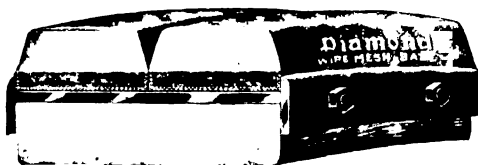
Since it is the tread alone on which the mileage of the tire must depend, that portion lying below the rim being useless as far as road wear is concerned, it is essential that these two elements be so proportioned that the life of each shall be equal, within natural limits to that of the other. For to design a tread which is disproportionate to the base, inviting a tendency to creeping, would be as unwise as to make the base of unwieldy size. As in that case, it would so far outlast the tread as to constitute a not inconsiderable waste of material. The tread, then, should be limited in bulk to the ability of the attaching system to hold it in position successfully until worn out. As a result of this process of reasoning, in the new Diamond construction, the base beneath the top of the flanges has been reduced to 7/16 inches, the base itself, however, having been broadened out materially to support the tread which is of large area, broad and flat. Also, the factor of needless resiliency has been reduced to a conservative amount, as this factor contributes greatly to shortening the life of the tire through continual deformation and recovery when on the road.

Another point, which has been worked out with care, is that of facilitating roadside repairs, the use of special fixtures and bolts having been eliminated, only nuts and bolts of the common standard sizes, and procurable at any hardware store, being used. As a result of this, complete replacements may be made in half an hour, and that without the use of any special degree of skill in manipulation—a factor, which in itself, is worthy of consideration. The flanges, the sole intent of which is to eliminate any tendency to side thrust, are all drilled to standard templates, and hence are entirely inter-



changeable. Moreover, no amount of denting, or distortion through hard usage, can in any way interfere with the successful operation of the tire itself.

The rubber compound which is used, has been chosen with due regard to the needs of the case, being sufficiently firm to resist distortion at the point of contact with the road, and at the same time, being unusually resistant, and not likely to chip or crack under hard usage. Care has also been taken to provide a compound which will submit well to vulcanized repairs, and which will take an even temper in vulcan-



ization. The vulcanizing process itself, is carried out with a view to insuring a uniform quality throughout the structure. In this connection the same elements have been employed as in the Diamond wrapped tread construction, used in the clincher tires, and which in that service has given the best of satisfaction.

As it has come to be evident that the strains of starting and stopping, as well as those destructive side thrusts of ordinary running cannot be evenly distributed throughout the fabric of a tire of more than five inches width, where larger sizes are in demand the Diamond Wire Mesh tires are now made in twin and even in triple types in widths of six, seven and eight inches. Beyond this, there is no limit to which the multiplication can be carried. Indeed, it is perfectly practicable to mount any number of these tires side by side on a rim, only one pair of side flanges being required in any case. No special skill is required in applying these multiple types, the elements being driven into place with a mallet, and the dozen nuts being tightened up in the usual way. The advantage of the twin over the single type of tire, is enormous, the running strains are as evenly distributed as

in the smaller sizes of single tire, and hence, the ton mile cost is reduced. The element of accident also is reduced in importance, as in case of injury, it is only one of the pair which is effected in most cases, and also, it has been proved that better traction is secured by this means, and a reduction in the tendency to skidding, which is the bane of all mechanical traction.

Challenging the Motor 'Bus.

A case of widespread interest to the advocates of the motor 'bus is now pending in the English courts, in which the right of a railway company to operate 'busses under its charter is brought into question by a local corporation which seeks to protect itself in the maintenance of its time honored tramway system.

The complainant is the Corporation of Birkenhead, which seeks to protect its vested rights in an electric tramway. By them it is claimed that the operation of motor 'busses as feeders to their line by the Mersey Railway Company is a separate and distinct business, and not consequential to the carrying on of a railway. The railway company contends that it is as incidental to its business to carry passengers to its various stations as it is to carry and distribute freight. An injunction was "reluctantly" granted by the court, and an appeal is expected. The case of the complainants was considerably strengthened by the allegation that the 'busses are continually injuring the roads.

Mercedes Makes Radical Changes.

It was announced some little time ago that in all probability the Mercedes racing cars for the coming season would be of the six-cylinder type, and would probably embody several novel features as well as one or two innovations of well tried ideas on the part of the German house. Now the nature of these departures which constitute almost a new type, which may be copied for the stock cars later on, is announced, and is practically revolutionary for the Mercedes firm. The cylinder construction will be of the separate liner type, turned steel liners being forced into cast jackets of the same material; the valves will be operated by rocker arms from an overhead shaft, driven by bevel gears; the exhaust will be separately piped to a header at the base of the crank case; and high tension magneto ignition will be employed.

To Protect the Bright Parts.

A point which is lost to a good many drivers is that when a car is to be driven in wet weather, it is a good expedient to coat all brightly finished parts with heavy grease which protects them from the moisture, and effectually prevents their becoming rusted. In the case of the plated parts, it is well to coat them with tallow whenever they are to be left standing for some little time, as in this way tarnishing is prevented, and the subsequent labor of polishing greatly lessened.

URUGUAY AS A MARKET

French Cars in Overwhelming Majority— How American Makers May Gain Ground.

While the use of the automobile is rapidly spreading to Uruguay, and it is advancing in popularity there, the market up to the present time, has been largely in the hands of the French makers, who have been reaching out for it in painstaking fashion. The conditions there, and the needs to be considered in establishing a trade, are set forth by Consul O'Hara, at Montevideo, in a recent report to Washington.

"Prior to 1905 there were but three machines in Uruguay and they were of French manufacture," he says, "while during the year just passed, forty-seven were imported, four of which were American. Two of the American machines are now in use.

"As might have been expected, the effort on the part of American manufacturers to introduce their automobiles into this country has met with persistent opposition from the dealers in other machines, and every available point of criticism has been raised against them. This criticism is having considerable influence with the expectant purchasers and has served to depress and discourage the importer, who knows little of the machine or its capacity. I called upon an importer in this city, who is the agent of the only American machines in this country, and found him discouraged. He complained bitterly of the treatment he had received at the hands of his principals. He said they had sent him no catalogues, no directions as to how the machine should be operated, and nothing to indicate the rate of speed of which the machine was capable, or the amount of gasoline necessary for its operation. In these matters I was able to assist him in some degree by means of catalogues of other firms which have been sent to this consulate, but there was another feature in which I was unable to assist him, and that was as to prices of parts or repairs in case any portion of the machine became damaged or destroyed. This, he said, was important, something his purchasers demanded to know before making an investment, and which information was furnished by manufacturers of other countries.

"When I expressed my surprise at this apparent neglect to give the proper information, catalogues, etc., he told me that the manufacturers had notified him that they would provide price lists of parts and general directions on application. This does not comport with the usual energy and attention to detail with which the American manufacturer advertises his products, and what must have been an oversight proved, in this case, to be very embarrassing. The American machines sent into this market are provided with canopy tops and detach-

able curtains, while the style mostly demanded is the Limousine or closed body with glass front, after the style of the French machines generally in use here, and adaptable to the needs of professional and business men, who invariably use a conveyance in going to and coming from their places of business. My informant had no information and very little idea as to the price of such an attachment, and whether or not it could be adjusted to the machines he had. I was forced to the conclusion that this exporter was not fair either to himself or to his agent, taking into consideration the great distance between manufacturer and sales agent, and the great length of time, usually from eight to ten weeks, necessary to secure information from the United States. Everything necessary to a complete understanding of the automobiles should have been furnished to the agent.

"The French machines in use here are well advertised. Their catalogues are printed in both Spanish and French; the parts are explained and listed, and full information may be had by applying to their agents in this city. The same care should be exercised by the American manufacturer and exporter.

"The Uruguayan Government has offered a special inducement to importers of automobiles by reducing the rate of duty to 8½ percent. on the valuation of the machines, which is usually placed at very much below the actual value. It is said, however, that this rate may be slightly increased, but owing to the great popularity of motor vehicles it is not thought that the rate will exceed 12 per cent. There are a great number of people in this country who have ample means with which to purchase machines, and the fact that they are rapidly growing in favor is sure to open to American machines a good market if the manufacturers and exporters will make the effort to avail themselves of it.

While the Uruguayan highways are not available for long tours with comfort, the streets of the city and suburban roads are in good condition, and the climate is such that they may be used with comfort and convenience during the entire year. The price of the machines usually demanded here ranges from \$1,200 to \$3,500, and they should be built strong and durable. Notwithstanding the fact that the French machine has been fairly well introduced and thoroughly advertised in this market, and that the agents are well equipped with everything necessary for a vigorous campaign, I have confidence that the American automobile will become the favorite when it is properly placed before these people and its superior qualities fully explained. It is not believed here that the American machine is constructed of a better grade of material than its European rival, or that it can be operated at less expense. This requires demonstration, and to have proper demonstration requires properly printed and illustrated catalogues in Spanish, and a full price list of parts. These should be

furnished the firms selling machines. But far more important than this is the sending of expert salesmen and demonstrators who understand the Spanish language. If this is done I have no doubt that the American automobile will become a popular vehicle in Uruguay."

Perpetual Motion for Motor Cars!

One more name has to be added to the list of those inventive geniuses who pride themselves on having discovered a means of obtaining perpetual motion. The discovery has not been heralded with any flourish of trumpets, for its announcement is limited to a very small advertisement in smaller type in an English paper. Naturally, in this enlightened day and age, the perpetual movement is obtained by means of a certain form of automobile, and its inventor hails from Clermont Ferrand, so it is evident that the speed of the racing cars which passed through that town last summer had something to do with the man's mental aberration.

The "invention," upon which a patent has been taken out, of course, is supposed to work on the following principle:

"This invention rests on the following principle: The force exercised by the wheels of a vehicle laden with a weight, going on a lever having as fulcrum the ground, as resistance an organ of transmission which receives the force, and as power the weight of the vehicle, is superior to the effort of traction of this vehicle. That motor is made of several carriages, with two wheels, loaded with a weight bound together, and rolling on two rails, where the levers are fixed. The levers are placed in a parallel position to the rails, which allows the wheels of the carriage, during the rolling, to have them up and down alternatively. The object of the movement of the carriage is to put into action some levers, which consequently produce a force much more powerful than the force needed for the traction of the said carriage. This motor gives the perpetual movement, for when it has gone on a certain length the force received by the levers is much superior to the force required to keep it in motion during an equal length. And it is so until the material of which this motor is made is worn out."

New Accumulators for Old Ones.

A company has recently been formed in England for the purpose of supplying motorists with freshly charged ignition accumulators. The idea is to keep on hand a comparatively large stock of accumulators which are to be charged at regular intervals, and passed over to the subscribers in exchange for discharged ones, which, in turn, will be recharged, and exchanged for others. The contracts are to run for a year, and it would seem that a very respectable amount of business could be done in this way, especially in a country where the use of accumulators is as popular as it is in Great Britain.

METHODS OF LUBRICATION

Several Systems Discussed—Great Heat in Bearings—How Turbines are Oiled.

In a great many cases bearings give trouble although the surface velocity and pressure per unit area are well within safe limits, the troubles being caused by the lack of attention to small but essential details, says the American Machinist.

One of the commonest causes of trouble in two-part bearings is side binding. This occurs principally in vertical engines and in other machinery where the principal load on the bearing is that due to the dead weight of the rotating part. The bearing boxes are too often bored and scraped to a good fit all around without being eased off to prevent wedging action nearing the parting of the boxes. This not only causes a tremendous pressure on the bearings at these points, but prevents the oil getting in between the shafts and the bearings. A bearing is always much better if eased off so that it will be well clear of the shaft for at least twenty degrees of arc on each side of the centre line, and even thirty degrees is not excessive. Many designers, especially those who have not had practical experience in the operation of machinery, seem to dislike to lose any part of the bearing area by easing off the sides of the boxes, but area at these points is more detrimental than efficient, and bearings which are originally made with all around contact can frequently be improved by the use of hammer and chisel.

Give the oil a fair chance to get in its work. The edges of the bearing boxes are frequently left sharp, thus scraping off the oil instead of assisting it to enter. If the box is eased off to form a channel for the oil, meeting the shaft approximately on a tangent, oil will be drawn in instead of being scraped off.

In the matter of oil grooves also, designers frequently seem loath to sacrifice bearing area, apparently losing sight of the fact that no area, no matter how great, can be sufficient unless properly lubricated. Oil grooves should be large, arranged so as to keep the oil well distributed and should have the edges well rounded off to facilitate the entrance of oil between bearing and journal. The simple removal of the sharp edge of the groove is not sufficient. Too many designers, however, seem to look upon the matter of oil grooves as of too little importance to be worthy of their consideration, but rather something to be left to the shop to be taken care of, or to be neglected entirely. The result frequently is an oil grooving which does more harm than good, leading the oil to certain parts of the bearing and leaving other parts dry.

From time to time various systems of improved lubrication have appeared, such as ring oiling, chain oiling, felt pads, packed waste, compression and spring grease cups,

etc. But with the exception of the "splasher" system, which is very efficiently used in a number of types of enclosed engines, such as practically all automobile motors, the old type of drop-by-drop lubrication, feeding the oil in homeopathic doses is one most generally used with engines, although it is about the least efficient and most expensive method of all. It is not only a wasteful method, but leads to danger of cutting bearings by reducing the oil supply to a dangerous minimum. It is not altogether the fault of engine builders that this form of lubrication is the one most generally used by them, but rather because purchasers will not stand the slight additional first cost of a better method.

Ring oiling and kindred systems are very efficient for a large class of bearings, but unfortunately are not well adapted to engine work, especially in large sizes, although some designers have done some very good work along this line.

Grease and similar lubricants have their limitations, but are ideal lubricants for many purposes, and in engine work can be used to good advantage on the smaller parts of valve gear and even on eccentrics.

Supplying oil under pressure is a necessity with step bearings which carry very heavy weights, and has been applied with success to horizontal bearings where the work is extremely heavy; but this class of lubrication may be considered as adaptable only to special cases where it is an absolute necessity, to be avoided if possible.

The central gravity system of lubrication which has come into extensive use in engine installations within the past few years has resulted in a marked saving in the cost of lubrication and the elimination of bearing troubles, and the details of such systems are well worth the serious attention of engineers. That is, systems which, while varying in details, comprise essentially an overhead supply tank, pipes leading to all bearings with valves for regulating the supply, arrangements for catching the overflow oil, settling tanks, filters and pumps for returning the oil to the supply tank, the whole system being automatic, and resulting in a continuous circulation of oil. Although this system is at present used principally in large installations, it has been used with success in smaller plants, and I believe that engineers would be fully justified in using it in installations of single engines of large or even moderate size. Its success is not only due to the saving of labor, as in large installations, but by supplying an excess of oil to the bearings the oil does not become "worn out," as in the drop-by-drop system, resulting in a reduction of oil bills.

A further extension of the principle of continuous circulation of oil obtains in the flooded system of lubrication which has come into use in connection with steam turbines. In fact, this system was introduced by Jarsons before the central gravity system for reciprocating engines came into vogue. This system consists in supplying

to the bearings as much oil as will flow through them; the oil carrying away the heat of the bearings and being cooled in a tubular cooler before going back to the bearings again. The oil is not forced into the bearings under pressure, but simply supplied at a head of from a few inches to several feet; just enough to allow it to flow freely to the bearings. As the oil is nowhere exposed to the outside air, circulating only in a closed system, it collects no dirt and does not need to be filtered, but is used over and over again continuously, the entire oil supply circulating through the bearings every few minutes.

By means of this system speeds and pressures are used which would otherwise be impossible, and, what is of still greater interest to the owner, is that the oil consumption is reduced to a minimum.

Users of engines and other machinery would do well to take a lesson from the results of steam turbine lubrication, which has demonstrated beyond a doubt that the supply of oil in large excess of that actually required to prevent bearings cutting is in the long run the most economical, and far in advance of the old drop-by-drop method.

Another matter upon which a few words may not be amiss is that of the temperature of bearings. There seems to be a widespread misapprehension as to what is a safe temperature. Much of the idea about safe temperature seems to be an inheritance from the time when lubricating oils were all of animal or vegetable origin and is not applicable to the high test mineral oils of to-day.

Some time ago I happened to get into a controversy as to proper bearing temperatures, the immediate cause of which was an engine whose main bearings ran at a temperature of about 135 degrees F., while the owner claimed that a temperature of over 100 degrees was unsafe and produced "expert" testimony to that effect. Knowing from experience that this view was not correct, but requiring testimony to the contrary, I proceeded to have examinations made of the temperature of bearings of a large number of engines of various makes. The result of this investigation showed more large engines running with bearings at temperatures over than under 135 degrees. Many bearings were running over 150 degrees, some considerably higher, and in one case a continuous temperature of 180 degrees was found, and in all of these cases the bearings were giving no trouble.

In this connection it might be well to point out that the introduction of direct-connected electric generators has increased the temperature of engine bearings, with the same bearings working under similar conditions. At first sight this may seem paradoxical, but it is easily explained. With the older types of drives the eccentrics were seldom covered, and crank oil guards, if used, were of an open type. But when driving direct-connected generators, where it is necessary to keep oil off the windings and commutators, closed oil guards are

fitted over cranks and eccentrics. This not only increases the temperature of the crank pins and eccentrics by preventing a circulation of air, but also retards the radiation of heat from the main bearings as well.

Extent of the German Trade.

Evidently German manufacturers are enjoying their full share of prosperity. United States Vice-Consul Schlemmer, at Mannheim, writing about the German iron and machinery industries, states that automobile makers have no cause for complaint. "The export of automobiles from Germany, principally to England and France, increased four hundred per cent. to 2,300 tons in 1905, against 546 tons in 1904," he writes. "The inquiry for automobiles is so enormous of late that one of the leading firms in the business upon inquiry made the statement that twice the present possible production in Germany would not supply the demand, especially for heavy vehicles. This condition of affairs has necessitated considerable importation of machines, principally from France. The gasoline motor still predominates, and will probably do so for some time yet, as the expectations placed in the electric have not been realized. England is Germany's best customer for automobiles, and orders for 300 to 400 machines at a time are sometimes received, principally for omnibuses and heavy carriages. The execution of orders is frequently impeded and delayed by the scarcity of raw materials."

Erie Railroad to Test Gasolene Cars.

Because of the inroads made upon their passenger receipts on the branch lines by trolley competition, the Erie Railroad Company is the latest to announce its intention of experimenting with power cars that may be operated cheaply. A steam car capable of carrying sixty passengers has been ordered from Europe and tests also will be given an American gasoline car. The first experiments will probably be made between New York City and Nanuet Junction, N. Y., and if they prove successful many of the small and now unprofitable branch lines will be so equipped.

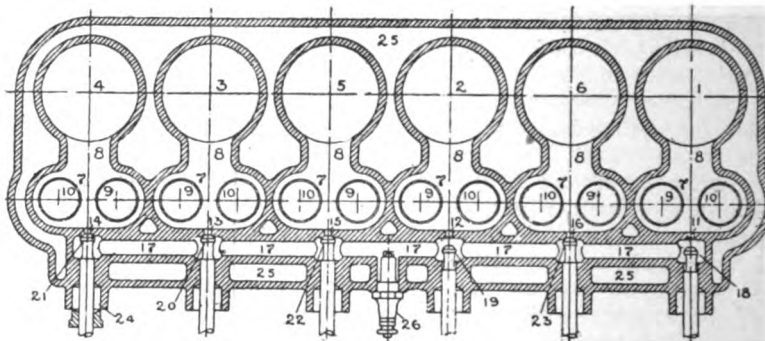
Persia to have Motor Line.

Persia is waking up to the benefits to be derived from motor traction, it seems, and will soon boast the accession of a regular passenger and freight service within its borders. For the purpose the Renard system will be used, a Serpollet steam tractor, two fifty-passenger trailers, and a three-and-a-half-ton truck having just having been completed in France, and shipped to Persia for the purpose.

Binghampton, N. Y., is going to have a "municipal rubber-neck" automobile line. City Clerk Herrick and Alderman Joseph Bromley are forming a stock company to operate a line of "seeing Binghampton" automobiles.

One Plug for Many Cylinders.

Recently some reference was made in these columns to a system of ignition which has been brought out in France and which involved the use of the flame of the burning charge in one cylinder for the ignition of the fresh charge in the next in order of firing, the system being available, of course, only for multi-cylinder machines. Since that time, there has been patented in England another system in which the same idea



is carried one step further, in that a continuous ignition chamber is provided embracing all the cylinders and being thrown into communication with them in succession by means of poppet valves actuated in the usual way, and so regulated that at the time of ignition in any one, communication is established through the chamber with another in which ignition is already taking place.

As shown in the illustration, the cylinders are all cast in a single piece, but this is not an essential requirement of the device, since the ignition chamber could be connected from one cylinder to another by couplings, or could be made in the form of a manifold, if necessary. As shown, however, the cylinders, 1, 6, 2, 5, 3, 4, are all surrounded by a common water jacket, and are provided with the usual distributing valves located in pockets. The valves are indicated by the figures 9 and 10, the ignition valves being placed between them admitting the ignition flame at the points, 11, 16, 12, 15, 13, 14, and the chamber itself laying along the backs of the cylinders as indicated at 17. The water jacket 25 is made to include these as well as the cylinders, thus maintaining the whole motor at a proper working temperature.

The valves, which are of the poppet type, are preferably packed around the stems to prevent any leakage of the gas, and are actuated by some mechanism capable of variation suited to the proper regulation of the time of the ignition. A spark plug 26 is placed in the ignition chamber to insure a flame there when running under low compression, or on starting.

Gledhill on Damascus Steel.

According to J. M. Gledhill, the famous Damascus steel was in reality nothing but a form of modern high speed tool steel, for it contained all the important properties of the latter. Marvelous cutting powers

have been attributed to it and recent analyses of the material show that it contained certain percentages of tungsten, nickel and manganese. This shows that a latent high speed steel was in existence centuries ago. All that was found necessary in order to bring out its inherent qualities was to "burn" it, a process which was long thought to destroy its usefulness, but which is now known to produce its greatest adaptability to the work in hand and render it capable

of effecting a great revolution in machine shop practice.

Turning the Front Wheels.

It always should be borne in mind that to turn the front wheels of a car by means of the steering wheel when the machine is at rest brings a very great and needless strain on both the tires and the steering gear. When this practice is permitted in the garage, the amount of lost motion in the gear is seen to have increased, and not infrequently the tires show signs of the wrenching as well. When it is necessary to turn the car without starting the engine, the guidance should always be done by swinging the wheels themselves, the steering wheel being turned at the same time by a second person in order to permit the gear, which in most cases is irreversible, to follow the motion.

Adding to the Luxuries.

While luxuries have been added to cars of all types, it is in the electrics that they are carried out in the highest degree. Here, for instance, are the conveniences included in the Columbia electric town carriages: Dome electric light, mirror, card case, toilet set, umbrella holder, memorandum pad, electric cigar lighter, electric foot warmer or fan and speaking tube and electric bell to driver's seat.

Milwaukee's Auto Transit Line.

For the purpose of operating an automobile stage line between Milwaukee and several of the inland lake resorts, the Milwaukee Auto Transit Company has been incorporated with a capital of \$15,000.

For a Municipal Garage.

A municipal garage will be the first of the buildings to be erected by the city of Cleveland, Ohio. It now owns one automobile and is about to buy five more.

The Week's Patents.

815,137. Safety Starting Mechanism for Motors. Adolphus H. Beecher, Mason City, Iowa. Filed Oct. 24, 1904. Serial No. 229,873.

Claim.—1. A safety starting mechanism for motors, comprising a casing loosely mounted on a shaft and spring-held against rotation, a crank loosely mounted on said shaft, engaging devices between said crank and shaft releasing devices connected with said casing and adapted to release said engaging devices.

815,257. Cooling Device for Cylinders. Charles H. Blomstrom, Detroit, Mich., assignor to C. H. Blomstrom Motor Company, Detroit, Mich., a corporation of Michigan. Filed Oct. 8, 1904. Serial No. 227,691.

Claim.—1. A cylinder for combustion engines having in combination with the cylinder-walls, flanges cast integral therewith and projecting therefrom and rods passing through the flanges and contacting the same so as to receive heat therefrom by conduction, substantially as and for the purpose described.

815,279. Vehicle Tire. Henry C. Folger, West Somerville Mass. Filed May 19, 1905. Serial No. 261,154.

Claim.—1. In a vehicle-tire, in combination with a felly of a wheel, an annular metal tube provided with parallel members co-operating with the sides of said felly, a flexible non-metallic lining secured to the exterior perimeter of said felly, and a pneumatic tube within said metal tube supported by said felly.

815,303. Recording Apparatus for Motor Vehicles. David Mason, New York, N. Y., assignor to John A. Woods, New York, N. Y. Original application filed Aug. 25, 1903. Serial No. 170,681. Divided and this application filed Nov. 21, 1903. Serial No. 182,054.

Claim.—In a speed-recording device, the combination of a driving-shaft, a collar fixed thereon, a second collar slidably mounted on the shaft, arms pivotally connected to the slidable collar and each carrying a governor-ball at its free end, links connecting the fixed collar and said arms, a collar adjustably mounted on said shaft between the fixed and movable collars, a set-screw to maintain the adjustable collar in position, an expansive spring on the driving-shaft, and abutting the movable and adjustable collars, a sleeve slidably mounted on the shaft and engaged by said first-mentioned slidable sleeve and having an annular groove, intergeared feed and take-up rolls carrying a record-sheet, a counter-shaft parallel to the driving-shaft for transmitting motion from the driving-shaft to the counter-shaft, a lever fulcrumed at a point intermediate its ends, said fulcrum being between the driving-shaft and said rolls, one end of said lever being provided with a pin disposed in the aforementioned groove, the other end of said lever carrying a marking device arranged to transverse the record-sheet.

815,319. Tire-Case. Howard R. Teel, Medford, Mass. Continuation of application Serial No. 286,138, filed Nov. 6, 1905. This application filed Jan. 6, 1906. Serial No. 294,859.

Claim.—1. A tire-case, having a main portion to fit over the tread and sides of the tire, a supplemental portion at one edge of said main portion and of sufficient width

to extend across to the opposite side of the case to cover the rim portion of the tire, and a retaining device at the opposite edge only of supplemental portion adapted to engage the other side of the main portion at the side of the case to hold the case in position.

815,345. Speed-Varying Mechanism. Gulow A. Gulowsen, Huguenot Park, N. Y. Filed July 13, 1905. Serial No. 269,519.

Claim.—In a speed-varying mechanism, in combination, driving and driven shafts, on each an expandible pulley, a belt connecting the pulleys; a pair of wheels approximately cone-shaped, the sides of which are in contact with the backs or hubs of the movable elements of both pulleys, said wheels being movable laterally to vary the lengthwise distances between each pair of the pulley elements.

815,346. Pneumatic Tire. Robert A. Harris, Tucson, Ariz. Filed Sept. 24, 1904. Serial No. 225,817.

Claim.—1. The combination with a wheel-rim, of a supplemental rim formed with grooves, tire-flanges having grooves therein registering with the grooves in the supplemental rim, a split ring in each pair of registering grooves, each split ring having lateral projections on its ends, cylindrical elements having cam-grooves therein to receive the lateral projections of said split rings, and means for rotating and locking said cylindrical elements.

815,360. Device for recharging the Storage Batteries of Automobiles. Lamar Lyndon, New York, N. Y. Filed May 4, 1904. Renewed Mar. 23, 1905. Serial No. 251,596.

Claim.—1. In an electrically propelled motor road-vehicle, the combination of a dynamo-electrical machine mounted on the vehicle and having a commutator and independent collecting devices, a storage battery adapted to furnish the total propelling-current also mounted on the vehicle, and connections whereby at will current may be supplied from said battery to said machine to operate the same, or alternating current may be delivered to said machine through said current-collecting devices when the vehicle is at rest and being there rectified and charged to direct current at the commutator be supplied from said machine to the battery to recharge the same, substantially as shown and described.

815,386. Change-Speed Gearing. Eugen Soller, Basel, and Friedrich Hottinger, Berne, Switzerland. Filed Apr. 29, 1904. Serial No. 205,614.

Claim.—1. In a change-speed gearing, a driving and a driven shaft, a plurality of gear-wheels mounted loosely on said shafts and engaging together in pairs, a corresponding series of pairs of coupling-clutches longitudinally adjustable on both shafts, rotatable disks geared together and each provided with a partly-concentric and partly projecting and re-entering cam-groove with the projecting and re-entering parts arranged in a different part of the groove relatively to the other disks, and a series of clutch-operating cranks engaging in said cam-grooves, substantially as set forth.

815,430. Pneumatic-Tired Wheels. Thos. B. Jeffery, Kenosha, Wis. Filed Nov. 21, 1904. Serial No. 233,698.

Claim.—1. In a vehicle-wheel, in combination with the felly, a rim encompassing the same having laterally-opening recesses; a flexible tire-casing having its lateral edges enlarged and entered in said recesses respectively; retaining devices also entered in the recesses, said recesses being narrowed at their mouths, and the sum of the thick-

WANTS AND FOR SALE.

15 cents per line of seven words, cash with order.
In capitals. 25 cents per line.

A TEN PASSENGER wagonette; sample car, 1905-1906 model steam; price and description on application. THOMPSON AUTO CO., Olneyville Sq., Providence, R. I.

FOR SALE—Second-hand Automobiles from \$100 up; write us for prices and description, we can save you money. THE E. H. TOWLE CO., Waterbury, Conn.

VULCANIZING—One-third saved; we do re-treading and repairing; make large vulcanizing outfits. Extra value in single tube tires, 28x2 1-2, \$10; 28x3, \$12; 30x3, 13; 34x2 1-2 \$10; seconds, \$2 less each; clincher tires, 25 per cent off list. CHAS. E. MILLER, Anderson, Ind.

FOR SALE—A 1905 Model "E" Locomobile, with extras cost, \$3,100. Car overhauled in November, in first class condition. Best offer over \$1,800 takes it. Address Box 582, Waterbury, Conn.

SECOND-HAND CARS at lowest prices, but no junk. Every car rebuilt and repainted by us before offered for sale. Can guarantee same. If you want to buy a second-hand car, see our 1905 Wintons just overhauled and repainted; like new; great bargains. No junk sold. CARLSON AUTO COMPANY, 1060 Bedford Ave., Brooklyn, N. Y., Winton Agent.

WANTED—Foreman experienced in gas engine work to take charge of engine assembling department in large automobile factory. Must be a hustler and come well recommended. Address R, Box 649, Motor World, New York City.

WANTED—Foreman to take charge of repair department in automobile factory. Must have had experience with high grade American and foreign cars and be able to handle men to advantage. No others need apply. Address M, Box 649, Motor World, New York City.

WANTED—Foreman for body and running gear finishing and assembling department in large automobile works. Must have had previous experience in this line. Address C, Box 649, Motor World, New York City.

WANTED—Draftsman. One familiar with automobile work preferred. None but first-class draftsmen need apply. Address T, care of Motor World, New York City.

FOR SALE—Baker Electrics, one each, Runabout, Stanhop, Imperial and Surrey with top, all new and at greatly reduced price. THE LOZIER MOTOR COMPANY, 55th Street and Broadway, New York City.

WANTED—Your auto tires; don't throw them away; we rebuild and do re-treading; guaranteed to last like new; less than one-third the cost of new casings. MEYER RUBBER VULCANIZING WORKS, Anderson, Ind.

FOR SALE—1905, 40 h. p. Thomas Flyer, used for demonstrating purposes, painted dark green, guaranteed to be in as good running condition as when new. C. A. COEY & CO., 1424 Michigan Ave., Chicago, Ill.

FOR SALE—A \$100 Canopy top, practically new, for Ford Model C. Price, \$60. Address G. S. MOON, Lynchburg, Va.

WANTED—Mechanical Superintendent (engineer preferred) for company employing a large number of commercial motor vehicles, both electric and gasoline. Must be practical, progressive, and experienced in the direction of men. Liberal salary. Address H. R., P. O. Box 822, N. Y. City.

ness of the enlarged edges of the casing and of the retaining devices in each recess being greater than the width of the mouth of the latter, said recesses being extended back from their mouths with capacity to accommodate the thickened endges, the latter being adapted to be passed back into the recesses to bring a thinner portion of the casing to the mouth, the mouth being wide enough to admit the retaining device uncompressed while accommodating said thinner portion.

815,492. Internal-Combustion Engine. Francis M. Uhler, Lincoln, Nebr., assignor of one-half to George W. Davis, Lincoln, Nebr. Filed Dec. 23, 1904. Serial No. 238,142.

Claim.—The combination in an internal-combustion engine, of a frame, a crank-shaft journaled in said frame, a cylinder arranged below the shaft, said cylinder having heads at its opposite ends, stuffing-boxes carried by the heads, a pair of pistons arranged in said cylinder and movable in opposite directions, respectively, tubes connected to the outer faces of the pistons and leading through said stuffing-boxes, the cylinder being thus divided into a central explosion-chamber and pumping-chambers, inlets through which the explosive mixture may pass to the end pumping-chambers when the pistons are at the limit of in-stroke, ports leading from said pumping-chambers and connected to a port that is placed in communication with the central explosion-chamber, when the pistons are at the limit of outstroke, one of the pistons controlling the inlet-port, and an exhaust-port leading from the combustion-chamber and controlled by the opposite piston, the ports being disposed, respectively, at opposite ends of said explosion-chamber, connecting-rods leading from the pistons through the tubular portions thereof, brackets extending outward from the frame to points beyond the ends of the cylinder, levers pivoted on said brackets, the lower arms of said levers being connected to the rods, and upper rods extending from the upper arms of said levers to the crank-shaft.

815,523. Cushion-Tire. Frank G. Freese, Philadelphia, Pa. Filed, Dec. 30, 1904. Serial No. 238,944.

Claim.—1. A tire comprising an outer ring, a rim having flanges connected therewith for engaging said outer ring, cushioning mechanism for supporting said outer ring, in combination with a wheel having a rim and flanges for engaging said first rim thereto, substantially as specified.

815,572. Vehicle-Tire. John K. Williams, Akron, Ohio. Filed Sept. 5, 1905. Serial No. 277,024.

Claim.—The combination in a vehicle-tire adapted to seat in a channeled rim, formed of elastic material and provided with a tread portion and integral side shoulders of sufficient width to permit the seating thereon of tire-retaining means, tire-retaining means consisting of circumferentially-arranged bands mounted on said shoulders in a state of tension, and a continuously-formed stiffening device embedded in the body of said tire of sufficient width to extend between the sides of said tire at such a point in the body thereof that the outer side edges will be exposed and form the bottom of the shoulders along said tire-body, said stiffening means being formed of a continuous strip of metal provided with a series of regularly-recurring openings, so shaped that the strips of metal existing between said openings will extend obliquely through the tire-body.

815,573. Vehicle-Wheel. Charles C. Wil-

son, Dalton, Ohio. Filed Nov. 1, 1905. Serial No. 285,387.

Claim.—1. In a vehicle-wheel, a series of rim-segments hinged at their adjacent ends, a series of plunger-spokes pivotally connected to said rim-segments, a series of tubular spokes and against which the plunger-spokes bear, a series of leaf-springs lying within the rim-segments and suitably secured therein, and a tire placed against said leaf-springs and within the rim-segments, substantially as set forth.

815,708. Speed-Indicator. Gustav Ihle, Berlin, Germany, assignor to Max Steinberg, Charlotteburg, near Berlin, Germany, and Max Tritter, Berlin, Germany. Filed May 13, 1905. Serial No. 260,305.

Claim.—1. In a speed-indicator, the combination of magnets mounted upon trunnions, means for rotating said magnets upon said trunnions, an armature disposed within the field of said magnets, and indicating mechanism connected with said armature.

815,712. Carburetter for Explosive-Engines. John H. Johnston, Paris, France. Filed June 24, 1905. Serial No. 266,783.

Claim.—1. In a carburetter, the combination of a spray-pipe, of a hollow piston around the spray-pipe, having an inner wall conical in shape and lateral apertures, of a ring surrounding a portion of the length of the piston, and a means for adjusting or regulating the position of the piston with respect to the spray-pipe and the said ring.

815,732. Reversing Mechanism for Engines. Harry L. Parr, Yonkers, and Charles E. Lucke, New York, N. Y. Filed Dec. 9, 1904. Serial No. 236,145.

Claim.—1. An engine having a cylinder, a piston arranged to operate in said cylinder, the latter having a charge-receiving space, and means operable at the will of an attendant for decreasing the effective area of charge-receiving space, thereby interposing a resistance, greater than the normal one, to the piston when the latter reaches a predetermined point on its inward stroke, for causing a reversal of the motion of the piston, said means being constructed to be automatically returned to normal relation when reversal takes place, thereby for restoring the charge-receiving space to its original relation.

815,735. Automobile. Francois Philain, Lyon, France. Filed Aug. 15, 1905. Serial No. 274,319.

Claim.—A live-axle having flared or splayed wheels for automobile vehicles, in which the outer tubular body or bridge is slanted or inclined at its two extremities forming two parts which make a slight angle with the main body of the bridge and upon which are mounted the road-wheels, the axes of which are thus slightly oblique, relatively to the axle of the axle, the live axle proper located in the tubular bridge extending horizontally for the whole length of the latter to beyond its extremities without making contact with the bridge and without bearing-rings, being connected only at one end to the differential and at the other to the road wheels, the connection with these latter being effected by means of any suitable jointed device transmitting power from the horizontal axis of the axle to the wheels which are mounted obliquely relatively to the said horizontal axis and in such a manner as to drive the road-wheels through their outer caps.

815,779. Valve-Gear for Explosion Engines. Louis P. A. A. Bailleul, Paris,

France. Filed Sept. 27, 1904. Serial No. 226,178.

Claim.—Valve-gear for explosion-engine, comprising inlet and exhaust valves, said valves being superposed and having a common seat, a sleeve for the exhaust-valve concentric with the stem of the inlet-valve, and means for working these valves whereby at the induction-stroke the inlet-valve opens alone and the gas enters through the interior of the sleeve of the exhaust-valve, which at the time remains closed to the exhaust, and at the exhaust-stroke the two valves, one held against the other, move thereupon exposing the exhaust-outlet.

815,802. Internal-Combustion Engine. Albert De Dion and Georges Bouton, Putteaux, France. Filed Mar. 15, 1905. Serial No. 250,320.

Claim.—1. A multiple-cylinder internal-combustion engine, comprising the combination with a plurality of cylinders, each provided with a suction-valve, of a hood inclosing said valve, a pair of pillars arranged in operative relation with respect to each of said hoods, a cross-bar mounted upon each pair of pillars and engaging each of the hoods, means for securing the cross-bar in position, conduits for establishing communication between the hoods, and a common supply-pipe for said conduits.

815,909. Friction Clutch. Talbot C. Dexter, Pearl River, N. Y. Filed Aug. 1905. Serial No. 276,286.

Claim.—1. A friction-clutch comprising a friction-wheel, a split friction-band encircling the friction-wheel, a wedge supported between the ends of the split band, and means engaging the ends of the band in opposition to the wedge.

815,910. Automobile Sleighing Attachment. Christopher C. Dolan, Lockport, N. Y. Filed June 13, 1905. Serial No. 265,035.

Claim.—1. The combination with a vehicle and its axle, of a propelling-wheel fixed upon and for rotation with the axle, said wheel being provided with a horizontal flange having guide-openings, a bearing-ring attaching to the wheel at a point beyond the flange, spaced members interposed between the bearing-ring and wheel and constituting guides, yieldable surface-engaging members having shanks arranged in the guides and movable through the openings in the flange, and springs for maintaining the engaging members in normal projected condition, said members being extended laterally beyond their shanks for contact with the periphery of the wheel to limit their inward movement.

815,918. Frame for Motor-Propelled Vehicles. George H. Jones, Philadelphia, Pa. Filed July 14, 1905. Serial No. 269,609.

Claim.—1. In a motor-propelled vehicle, an integral frame comprising a central gear casing with the lower edges of the side plates, and ribs connecting the side of the central casing, the side plates and bottom plates, substantially as described.

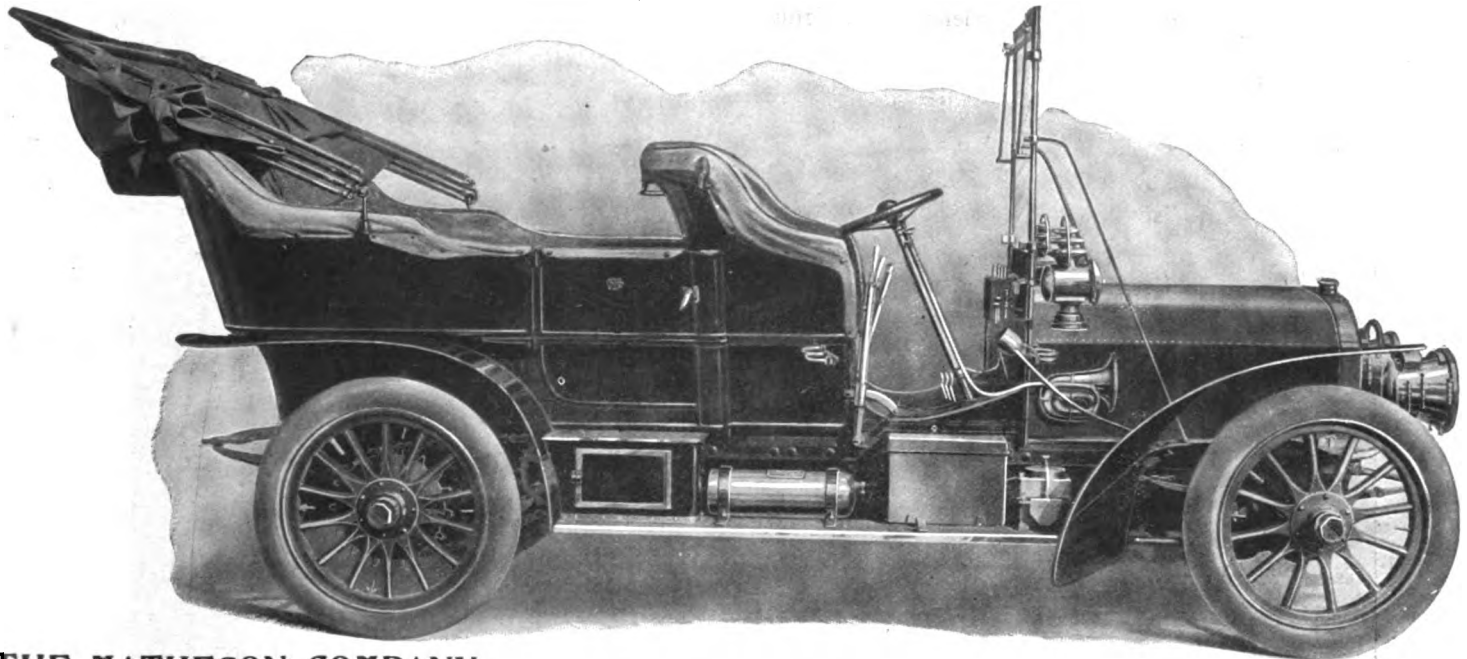
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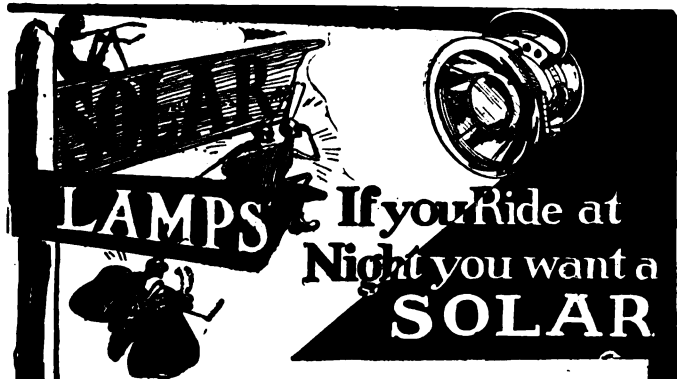
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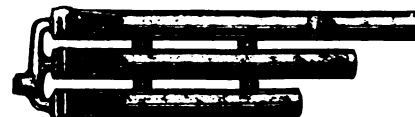
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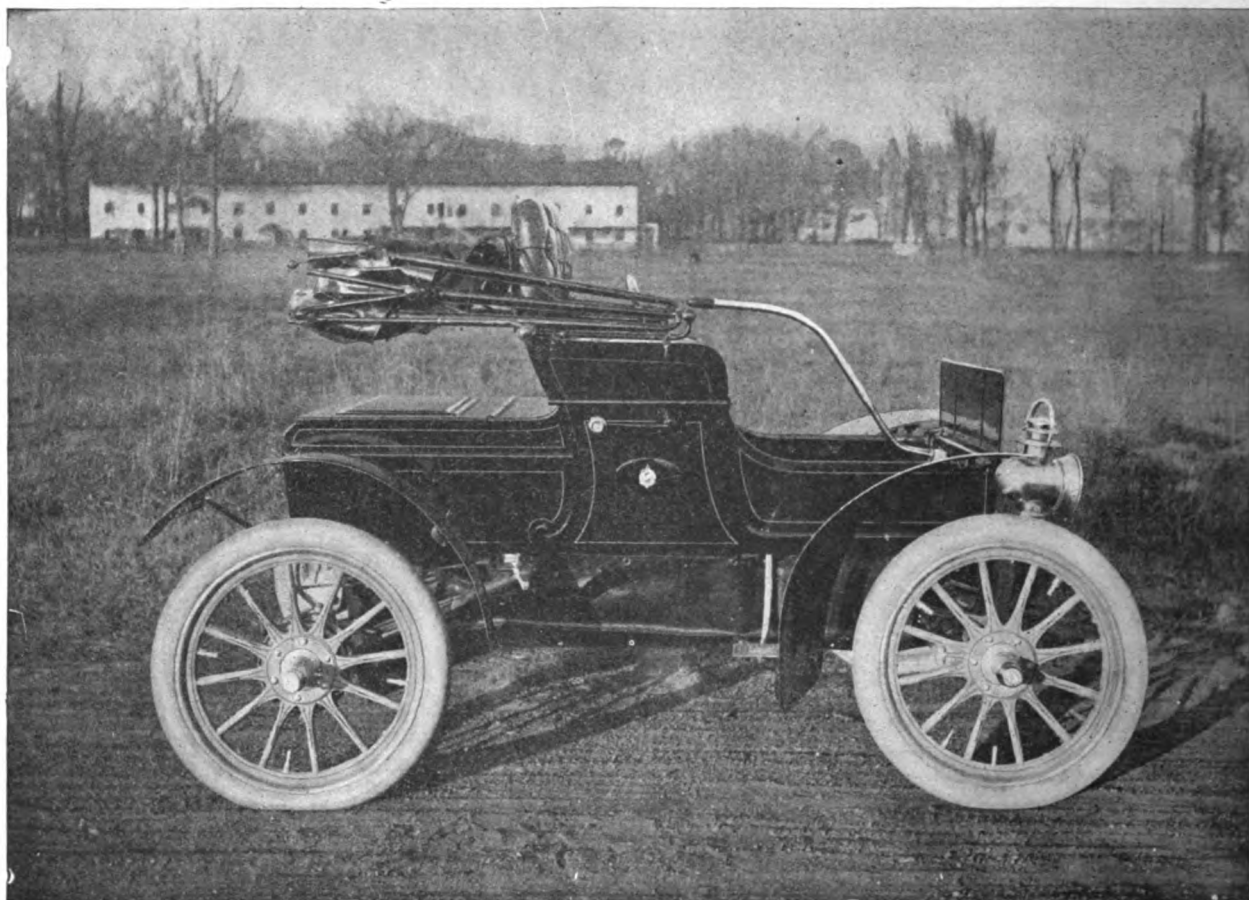
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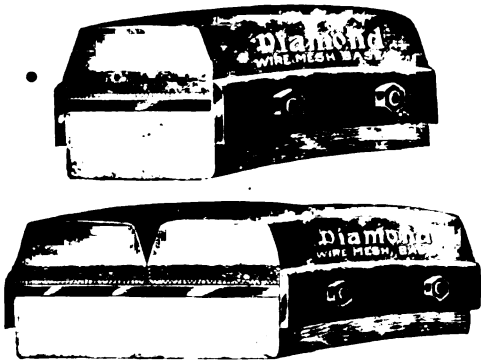
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This AUTO TIRE is both DURABLE and LIVELY

When you buy an *ordinary* Auto Tire, you have to decide a difficult question.

Is it best to get a hard, inflexible tire, which will rack your bones and soon put your car out of business, but which will last a season or more

Or—

To get a soft, resilient, easy riding tire, which will go to pieces in a short time because it won't stand the wear and tear of the road?

Momentous question.

And either way you answer it—you lose.

Because if you decide on the *hard* tire, it means breakdowns on the road, and consequent liberal use of a farmer's team. It means constant repairs to your engine, a car always in the shop. Your aching joints are thrown in for good measure.

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You'll envy Rockefeller before you get through.

Now you can *dodge* this momentous question if you will.

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Dense, Tough
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Rubber



It's easy for anyone to understand WHY this is true. Read carefully, and see for yourself.

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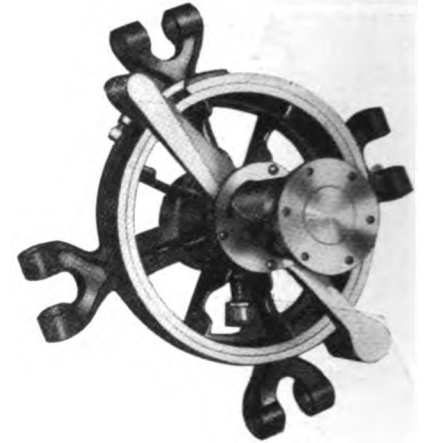
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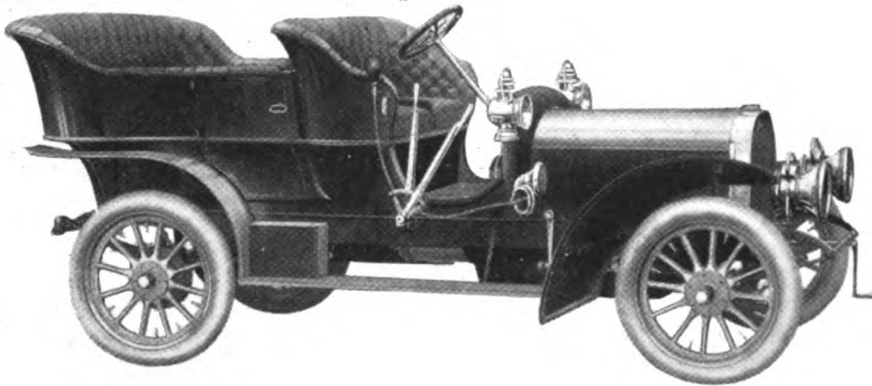
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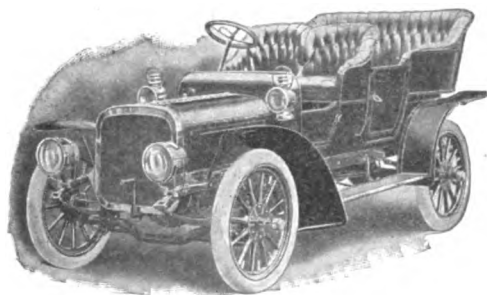
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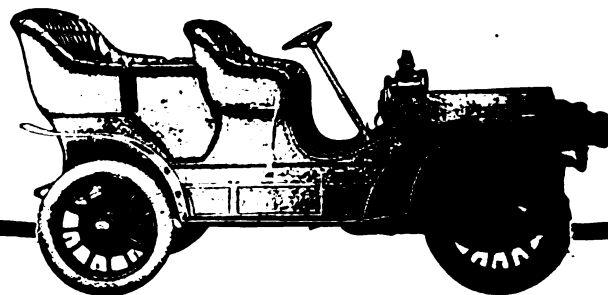
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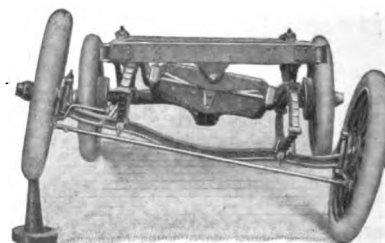
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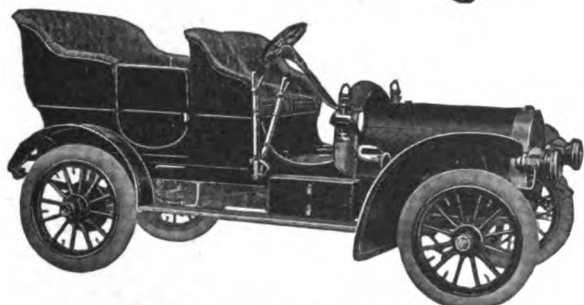
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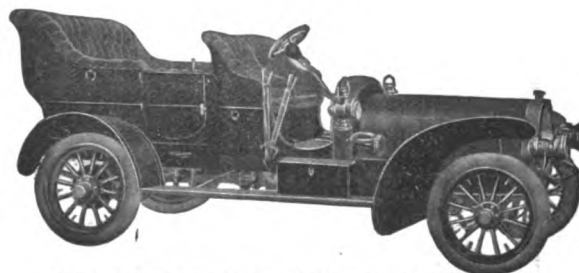


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The Foster Brake is economical, simple, compact, substantial, weighing 2½ lbs., adjustable in every direction and can be placed on any machine.

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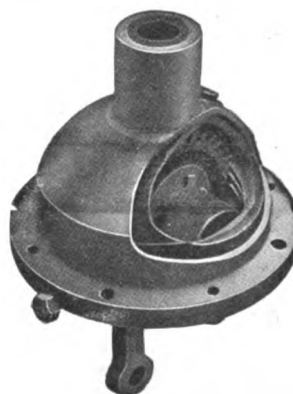
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(Latter all sold for present)

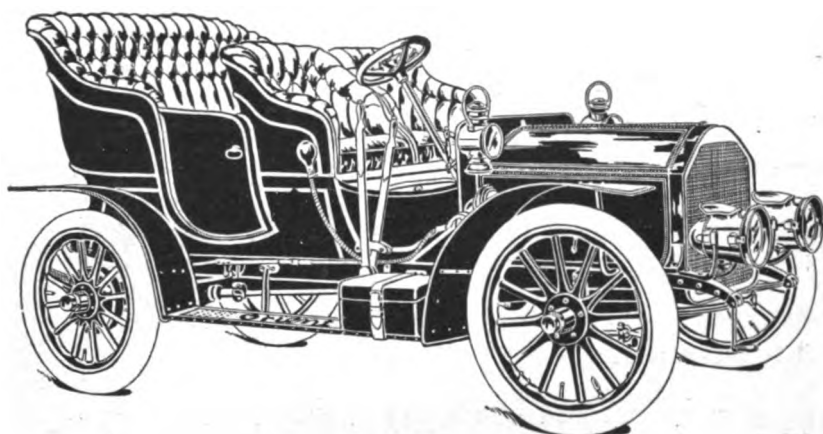
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THOS. J. WETZEL, 11 Warren Street, New York. } Sales

CHAS. E. MILLER, 97 Reade Street, New York;
Branches in Philadelphia, Boston,
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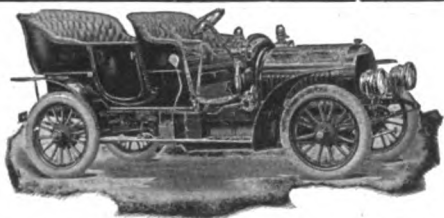
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MODEL B. B. 4 H. P. \$400	MODEL N. 20 H. P. \$2,000
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MODEL K. 16 H. P. \$1,600	MODEL R. 20 H. P. \$2,250

WALTHAM MANUFACTURING COMPANY, GENERAL OFFICES AND FACTORY: Waltham, Mass., U. S. A.

Members Association of Licensed Automobile Manufacturers.



IT IS NOW WELL KNOWN

THAT THE

ROYAL TOURIST

is the most reliable and most economical motor car built anywhere.
If you care to confirm this statement

ASK AN OWNER

OF A

ROYAL

ROYAL MOTOR CAR CO.

Cleveland, O.

ERR & CO., New York, N. Y.; G. J. DUNHAM, McDUFFEE AUTOMOBILE CO., Chicago, Minn.; AUTOMOBILE & SUPPLY CO., Ont.; MOTOR SHOP, Philadelphia, Pa.; AR CO., St. Louis, Mo.; STANDARD Motor Car Co., St. Louis, Mo.; AMOS-PIERCE AUTO CO., Buffalo, N. Y.; ROYAL Motor Car Co., Rochester, N. Y.; ROYAL Motor Car Co., San Francisco, Cal.

L. A. M.



**Absolutely Accurate
At All Speeds**

NO matter how fast or how slow you go, the Auto-Meter tells the speed at which your Automobile is traveling with unflinching correctness.

It is actuated by the same *unchangeable magnetism* which makes the Mariner's Compass unflinching and certain forever. The Auto-Meter is the only successful *magnetic* indicator because there is just one way in which magnetism can *successfully* be used, and we have patented that way.

That means that the only indicator you can depend upon for *permanent reliability* is

**THE WARNER
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(Registers Speed and Distance)

It registers any speed from $\frac{1}{4}$ mile to 60 miles per hour.

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It is accurate when you get it, and is

GUARANTEED TEN YEARS

We will renew any Auto-Meter within 10 years (unless injured by accident) if the Magnet (the HEART of the instrument) is more than 1-10 of 1% incorrect. Any man who can afford an automobile can easily afford an Auto-Meter. It is as indispensable to the Motorist as the watch in his pocket.

Let us tell you more about it. Write us today and we'll send you with our answer our free book, "Auto Pointers." Address

The Warner Instrument Co., 81 Roosevelt St., Beloit, Wis.

(The Auto-Meter is on sale by all first-class dealers and at most Garages.)

Locomobile

The *Locomobile* Company of America, Bridgeport, Conn.

Member Association of Licensed Automobile Manufacturers

NEW YORK, Broadway and 76th St.

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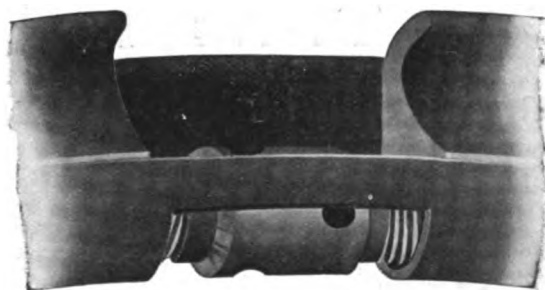
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Our Output of Detachable Bead Rims is Greater than
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Sole Makers of the HARTFORD UNIVERSAL RIM for DUNLOP AND CLINCHER TIRES

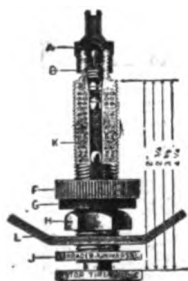


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SCHRADER UNIVERSAL VALVE.

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SIMPLE AND ABSOLUTELY AIR TIGHT.

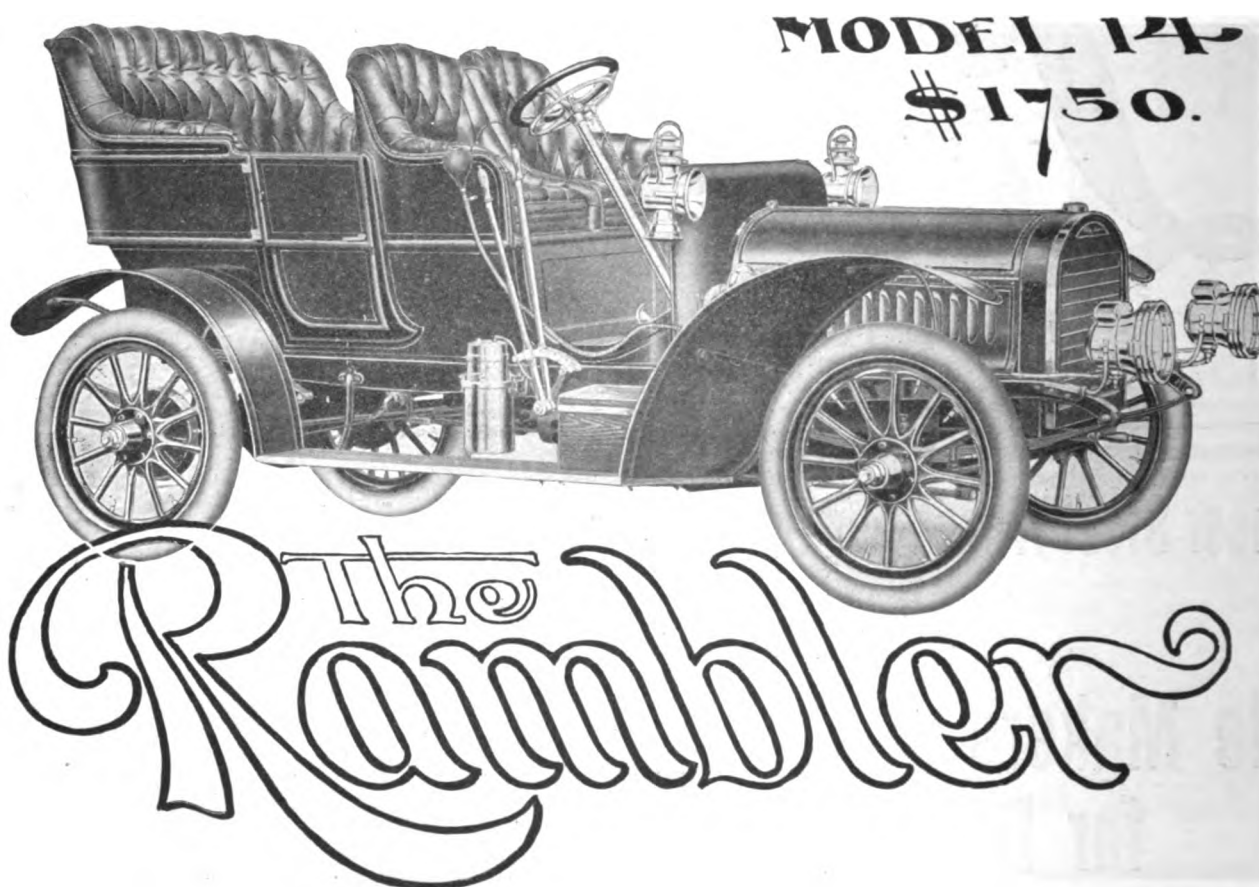


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SUPPLIED TO THE TRADE BY ALL TIRE MANUFACTURERS.

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THE CAR THAT IS RIGHT in Design, Material and Workmanship.

The highest possible grade of material, handled according to the design of skilled and experienced engineers, by expert mechanics in the largest and most thoroughly equipped automobile factory in the world.

There is no part based on guess work or on what the other fellow does, and the costly experimental work is done in the factory and not by the purchaser.

It is **RIGHT** in the beginning, **RIGHT** when delivered and stays **RIGHT** all the time.

These are the features of primary importance but the facilities of our enormous factory enable us to give you

THE RIGHT CAR AT THE RIGHT PRICE.

Will be cheerfully shown and demonstrated at our various Branches.

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BRANCHES:

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Representatives in all leading cities.

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THE MOTOR WORLD.

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE
AND KINDRED INTERESTS

Volume XII.

New York, U. S. A., Thursday, April 5, 1906.

No. 10

PAXTON HEADS NEW COMPANY

No Further Particulars Regarding Successor of Vehicle Equipment Co. Forthcoming.

Following the action of its creditors in petitioning the Vehicle Equipment Co. into involuntary bankruptcy, official announcement has been made of what the Motor World last week stated would be the case, i. e.: that the Vehicle Equipment Co. has been succeeded by the General Vehicle Co. Who comprises the new company, save that someone of the name of Paxton is president, where it was incorporated or what its capital may be, are details not yet obtainable.

Herbert D. Lloyd, whose brother is vice-president of the old company, upon being asked for particulars, began to give the information sought for freely, stating that the new company had been organized as a leasing company to take over the business of the Vehicle Equipment Co., and that a Mr. Paxton was its president, when he experienced a sudden change of mind, and abruptly referred the inquirer to a Mr. Phillips, in another office of the Long Island City factory. Mr. Phillips, however, declined to discuss the matter at all, merely saying that full particulars would be made public "in due course."

Spiers Goes With Midgley.

John C. Spiers, formerly superintendent of the Autocar Co., Ardmore, Pa., has engaged as superintendent of the Midgley Mfg. Co., Columbus, Ohio, and already has assumed charge of the big plant, the capacity of which has been more than doubled during the past year. Spiers always has had a high reputation as a factory manager and as he is no stranger to the Midgley pressed steel wheels, that his influence will be felt in his new position seems certain.

Blake Transferred to Boston.

Kenneth M. Blake has been appointed manager of the Locomobile branch in Boston, to fill the vacancy made by the resignation of J. W. McAlman, who has assumed

charge of the Boston store of the Electric Vehicle Co. Mr. Blake has been acting manager of the New York City Locomobile branch. He has been connected with Locomobile interests since it was formed in 1899. Mr. Blake has traveled abroad considerably during the last six years and has won a number of medals in Continental hill climbs. He is proud of acquaintanceship with many dignitaries high in European officialdom, to some of whom he has sold Locomobile cars.

Firestone Building Ready May 1st.

The Chicago branch of the Firestone Tire and Rubber Co. will occupy its new building, at 1442 Michigan avenue, about May 1. The building is to be of two stories, with a twenty-five-foot frontage and will be 171 feet deep. The second floor will be utilized by the repair forces, while the office and stock room will be located on the first floor.

Diamond Rubber in New Chicago Home.

On May 1 the sales and repair departments of the Diamond Rubber Company's Chicago branch will move into the new three-story block now nearing completion at 1528 to 1531 Michigan avenue. The building fronts on Michigan avenue 100 feet and has a floor space of 32,000 square feet. O. S. Tweedy, at present in charge, will continue to act in that capacity.

Geyler & Levy Take on the Lozier.

The Lozier Motor Company, now that they are in a position to place agencies, would seem to be losing no time, or having any trouble in securing choice representation. Their latest move in this direction was the placing of the Lozier agency with Geyler & Levy, of Chicago, distributors of the Autocar Company in that section.

New Stearns Agencies.

Several agencies have been placed during the past week by the F. B. Stearns Co., of Cleveland, Ohio. Among them are the Pacific Motor Car Co., 425 Golden Gate avenue, San Francisco, Cal.; Atlantic Automobile Co., 89 North Pryor street, Atlanta, Ga., and the Auto Storage and Repair Co., Wilmington, Del.

CLEARs UP SHOW SITUATION

N. A. A. M. Makes Plain its Attitude in Relation to Local Exhibitions.

At its meeting in New York, yesterday, the Executive Committee of the National Association of Automobile Manufacturers took pains to render clearer the attitude of the association with regard to local shows, as was predicted by the Motor World in its report of the March meeting. It was made plain immediately after the latter meeting that the resolution deciding to sanction only the New York and Chicago annual shows, was merely meant to convey that the National Association will henceforth concern itself directly with national shows only and not to eliminate local exhibitions as was generally assumed was the case. To further confirm their attitude, as well as to demonstrate the fact that the Association actually favors local shows, it was decided at yesterday's meeting that branch houses shall be considered in the same light as dealers, so that if a branch house manager desires to take part in a local show no penalty will attach to the manufacturer he represents. The N. A. A. M. has, however, washed its hands of local shows which henceforth will require no sanctions.

Despite the fact that there had been a joint meeting of the contest committees of the N. A. A. M. and A. A. A. associations, it came out that the former committee had failed to agree upon any code of rules to govern the running of the Glidden Tour, and that a step was taken to silence criticism of the association's position in assuming to even indirectly control competition by forbidding its members to take part in events not approved by the association. This took the form of a recommendation that the N. A. A. M. consider for approval during 1906 only such contests as are conducted by the American Automobile Association.

As its reasons for having been unable to make any definite recommendation with regard to rules for the Glidden Tour as requested by the American Automobile Association, it is stated that "after full consid-

eration of the rules of contests held in this and other countries, it had become convinced of the impossibility of making equitable rules to select from cars of every conceivable construction, weight, power, speed, seating capacity and price, one machine as a winner, except in a speed contest."

There were present at the meeting: S. T. Davis, Locomobile Co.; W. T. Metzger, Cadillac Motor Car Co.; Windsor T. White, White Sewing Machine Co.; Charles Clifton, George N. Pierce Co.; S. D. Waldon, Packard Motor Car Co.; W. E. Innis, Studebaker Automobile Co.; C. C. Hildebrand, Stevens Arms and Tool Co.; M. J. Budlong, Electric Vehicle Co.; E. H. Cutler, Knox Automobile Co.; L. H. Kittridge, Peerless Motor Car Co., and Albert L. Pope, Pope Mfg. Co.

Woods' Factory Nearing Completion.

The new factory of the Woods Motor Vehicle Co., at Twenty-fifth street and Calumet avenue, Chicago, is nearing completion. The new plant will be in operation early in April, according to present plans. The new building has three times the floor space of the present factory at Twentieth street. The original plans for the building called for four and a half stories, but it will be increased to seven and a half in the fall.

Monumental City Dealers Elect.

The Automobile Dealers' Association of Baltimore, Md., was formally organized last week. Richard Keating was elected president; G. W. Hamill, vice-president; Howard Gill, treasurer and E. L. Buchanon, secretary. The board of directors will consist of the officers and Dr. Rowe. Preliminary organization was effected some time ago, but all the details were not completed until last week.

Continental's New Plant at Muskegon.

Instead of the one-story addition to its new factory at Muskegon, Michigan, the Continental Motor Manufacturing Company has found it necessary to construct two. The company will not move all its machinery from the Chicago plant until the fall, as it is desired to have everything in readiness to begin operations without delay when the removal is made.

To Make Engines at Warren.

Besides making marine engines, the Warren Mfg. Co., which has established itself at Warren, Mass., will engage in the manufacture of gasoline automobile engines and carburetors and mufflers. The company is occupying the Torkelson plant.

Blake Resigns from the Corbin.

Philip W. Blake has handed in his resignation as purchasing agent of the Corbin Motor Vehicle Corporation, to accept a position as assistant manager of the American Electric Novelty & Manufacturing Works, New York City.

The Week's Incorporations.

Chatham, Ont.—Chatham Motor Car Co., Ltd., under Canada laws, with \$50,000 capital; to manufacture automobiles. Corporators—R. L. Brackin, et als.

Portland, Ore.—John S. Matthews' Motor Co., under Oregon laws, with \$100,000 capital. Corporators—John S. Matthews, W. P. Evans, W. C. Minnis and Clarence Penland.

Winchendon, Mass.—Winchendon Auto Transit Co., under Massachusetts laws, with \$10,000 capital. Corporators and officers—J. P. Bartlett, president; H. O. McColley, treasurer.

Brockton, Mass.—Brockton Motor Exchange, under Massachusetts laws, with \$3,000 capital; to deal in automobiles. President and treasurer, O. A. Campbell, of Brockton.

Centralia, Ill.—Illinois Motor Roadway Co., under Illinois laws, with \$150,000 capital; to maintain motor roadway. Corporators—T. A. Johnston, W. Rollin Smith and F. B. Miller.

Brooklyn, N. Y.—Flatbush Automobile Co., under New York laws, with \$5,000 capital; to make automobiles. Corporators—E. G. Applegate, Annie E. Applegate and S. E. Maires, all of Brooklyn.

Chicago, Ill.—Washington Automobile Co., under Illinois laws, with \$10,000 capital; to deal in and repair automobiles. Corporators—Albert J. Brockman, Wilbur J. Wilkins and Leona Barth.

Holdrege, Ind.—Holdrege Automobile Co., under Indiana laws, with \$10,000 capital; to deal in automobiles. Corporators—Wellman H. Paddock, Albert F. Larson and William A. Spurck.

Tacoma, Wash.—Coon's Consolidated Motor Co., under Washington laws, with \$900,000 capital. Corporators—R. E. Coon, William H. Peacock, L. M. Coon, G. H. Clark and Mary E. Gardner.

New York City, N. Y.—P. A. Fogarty, Inc., under New York laws, with \$10,000 capital; to deal in automobiles. Corporators—P. A. Fogarty, W. P. Fogarty and J. J. DeLong, all of New York City.

Boston, Mass.—Goodyear Tire & Rubber Co., under Massachusetts laws, with \$10,000 capital; to deal in rubber tires. Corporators and officers—President, not named; treasurer, C. W. Sieberling, Akron, Ohio.

Watertown, N. Y.—Acme Automobile Co., under New York laws, with \$1,000 capital; to deal in automobiles. Corporators—F. W. Kavanaugh, Waterford; D. M. McDermott, Troy, and E. P. Chapman, Jr., Troy.

In the Retail World.

The Norcross-Cameron Co., Springfield, Mass., has taken the agency in that city and the adjoining territory for the Corbin car.

C. W. Peters has taken the agency in Millard, Neb., and vicinity, for the Rambler

line. His first week's sales amounted to three cars.

The Peoria Automobile Co., which is conducting a garage at 800 Hamilton street, Peoria, Ill., will build a two-story brick garage at 711 Main street, that city. The estimated cost is \$7,000.

The Muncie Auto Parts Co., which was organized last fall in Muncie, Ind., has outgrown its present quarters at 115 West Main street. It accordingly is moving to 210 North Walnut street.

Fire in the building at 80-84 Michigan avenue, Chicago, Ill., on Saturday last, 24th inst., caused a loss of over \$50,000. The only occupants were Beckley, Ralston & Co., dealers in automobile supplies, who were insured.

The Mount Vernon Motor Co., of Morton street, Baltimore, Md., has bought out the business of the Auto Storage and Repair Co., on Cathedral street. O. L. Gooden, who owned the latter, will become associated with W. F. Cochran, Jr., as soon as the latter's garage at Woodbrook is completed.

After May 1, the Bennett-Bird Automobile Co., of Chicago, will occupy the new building which is being erected at 1470 Michigan avenue. The structure is now well under way and will be of two stories and 170 feet deep by 25 feet wide. The firm is at present located at 1404 Michigan avenue and these premises will be occupied by Jerry Ellis and A. G. Schmidt when vacated.

Bankrupt Sale not Confirmed.

Although it was given out that C. J. O'Hara, of Detroit, purchased the effects of the Auto Brass and Aluminum Co., at Flint, Mich., for \$4,250, the sale was not confirmed and a new sale has been ordered. The C. C. Wormer Machinery Co., Detroit, Mich., has petitioned that it be allowed to remove from the plant machinery which the petitioner sold to the bankrupt company. Judge Swan, of the United States District Court, granted an order that the petitioner be allowed to take the machinery after the expiration of thirty days, unless in the meantime the trustees should pay the petitioner the balance due, amounting to \$6,363.

Straight Buys Duquesne Plant.

The plant of the Duquesne Motor Car Co., at Jamestown, N. Y., which was leased by the Duquesne Construction Co., was disposed of by mortgage foreclosure sale last week. R. J. Straight, of Bedford, the mortgagee, purchased the property for \$21,825.

Bert Morley Leaves Briscoe.

Bert Morley, who has been connected with the Briscoe Manufacturing Company, of Detroit, Mich., for about three years, has resigned his position with that company to accept a similar one with Hayden Eames, of Cleveland.

ONE-SIDED WILLINGNESS

The A. M. C. M. A. Invites the N. A. A. M. to Talk over the Outside Show.

The show pot of 1907, which was placed on the fire before the embers of this year's exhibits were scarcely cold, has just began to sing merrily and promises to reach the boiling point at an early date.

At a meeting of the Committee of Management of the American Motor Car Manufacturers' Association in Chicago, last Saturday, a resolution was offered, and unanimously passed, favoring the holding of dealers' automobile shows in New York City and Chicago, to be operated and managed by the local dealers' associations of those cities. This action, following on the heels of the organization's declaration in favor of an open air show, complicates the situation still further and bids fair to add to the general hilarity of the entire show question.

Still another element is likely to be introduced by an invitation extended by the American Motor Car Manufacturers' Association to the N. A. A. M. to talk over the plans of the outdoor show and, it is assumed, secure, if possible, their co-operation on it.

The recent and much-talked-of resolution passed by the last named body, which was intended in effect to mean keeping its hands off local shows entirely, would in itself seem to run counter to any proposition along the lines suggested. Whatever way the situation resolves itself, it seems certain that the trade will not suffer from lack of shows, national, local or outdoors.

Olds Adopts Sager Springs.

The Olds Motor Works has settled the question of auxiliary springing by adopting the Sager equalizing springs; they will be applied to all Oldsmobiles save the \$650 runabout, trucks not excepted.

Credit Due to the Tire.

It is a curious fact that the subject of tires seldom comes up for discussion except when there is some criticism to be offered. So long as a machine runs without tire trouble, it receives all the credit for its performance, and the work of the tires goes without mention, while granted only that it is delayed by punctures, and the delay is made as an excuse for any other shortcomings which even otherwise might have interfered with its work. A good illustration of the case in point is the fact that little or nothing has been heard of the performance of the tires on the Stanley steam car which achieved such success at the Ormond meet. Although it was equipped with standard G & J tires selected at random from stock, absolutely no trouble was experienced with them during the entire week, either in practice workouts or in any of the regular events. Indeed, it is a matter of record that they were not even

pumped from the time they left the factory in Newton until the machine was brought home again after its performance. And yet all the credit is given to the car rather than to the tires which carried it to victory. Of course, the work of the machine itself was nothing short of the marvelous, but without in any way minimizing that, it is evident that, without being properly shod, nothing like its actual speed could have been accomplished.

Uniting Against Bad Legislation.

At a meeting of representatives of clubs in the New York State Automobile Association at Albany, yesterday, a resolution by Dave Hennen Morris, president of the A. C. A., proposing a campaign to protect automobile interests from hostile legislation and to favor such bills as may be recommended by the organization, was unanimously adopted. Oliver A. Quayle, president of the State association, was authorized to appoint a special legislative committee of three. One member will represent New York City proper, that is, south of the Harlem, and a second the remainder of the State, while the third is to be a representative at large. The committee is to report to the State association not later than December 1, 1906. The first work of the committee will be to fight Assemblyman Lee's "six miles an hour within twenty rods of a horse" bill, but Mr. Lee has agreed to drop his measure in favor of the L'Hommedieu tax bill, which he will henceforth support.

Garage Charges in Pittsburgh.

The scale of prices which the recently organized Pittsburgh Automobile Dealers' Association have adopted, went into effect this week. Storage prices for limousines or semi-limousine cars will be \$7 live and \$3.50 dead; for touring cars, \$6 live and \$3 dead; and for runabouts, \$5 live and \$2.50 dead. These prices do not include washing and polishing. Limousine or semi-limousine cars will be washed and polished for \$1.50; touring cars for \$1.25, and runabouts for \$1. As told in last week's Motor World, the companies who joined the association are, namely: The Standard Automobile Co., Banker Bros. Automobile Co., the Hiland Automobile Co., the Keystone Automobile Co., East Liberty Automobile Co., Fort Pitt Automobile Co., and Allegheny Automobile Co.

Promoter's Trial Suddenly Upset.

There was a sudden termination of the first case against Howard Heath, the self-styled automobile manufacturer who fleeced some Elgin, Ill., residents out of their hard-earned cash, by inducing them to subscribe for stock in an automobile factory and then suddenly left town without so much as saying good-bye. After all the testimony had been offered by both sides it was found that the name of one of the persons implicated had been spelled wrong. Heath's second trial will come before the court in about two weeks.

NO CHANGE IN SHOW DATE

Rumors About the A. L. A. M. Exhibition for 1907 Set at Rest.

Rumors that have been afloat during the past week to the effect that the Association of Licensed Automobile Manufacturers would come out in favor of earlier show dates and that the matter would be definitely decided at the meeting held on Wednesday, prove to have had small foundation. To those who were cognizant of the state of affairs where the licensed show situation is concerned, it was evident that there could be little or no basis for the reports, as the lease of the Garden calls for its occupation during the week in January in which it has been customary to hold the show ever since it was inaugurated.

When appealed to for substantiation of this view, Marcus I. Brock, assistant manager of the association, confirmed it, but stated that the association was not bound hard and fast by its lease with the Garden management.

"The lease gives up an option," said Mr. Brock, "in that we have the choice of one other week in which to hold the show, but for our purpose, it is equivalent to none, for it happens to be the week preceding Christmas and could hardly be considered as suitable. The public has become accustomed to having the show during January and you will be perfectly safe in stating that the licensed show will be held at the same time as usual."

Report in Favor of Free Alcohol.

Consideration of the bill exempting industrial alcohol from taxation, which has been before the Ways and Means Committee for more than a month past, culminated yesterday in the presentation by Mr. Payne as chairman of that body, of a favorable report to the House. Mr. Payne dealt at length with the probable cost of alcohol under the new system, presenting figures to indicate the extent of its use here and abroad, besides reviewing the course of proposed legislation of the kind during the past nine years when the subject first came up. He also presented a long and detailed argument showing that no difficulty would be encountered in guarding against fraud and that no objection could arise on the score of loss of revenue.

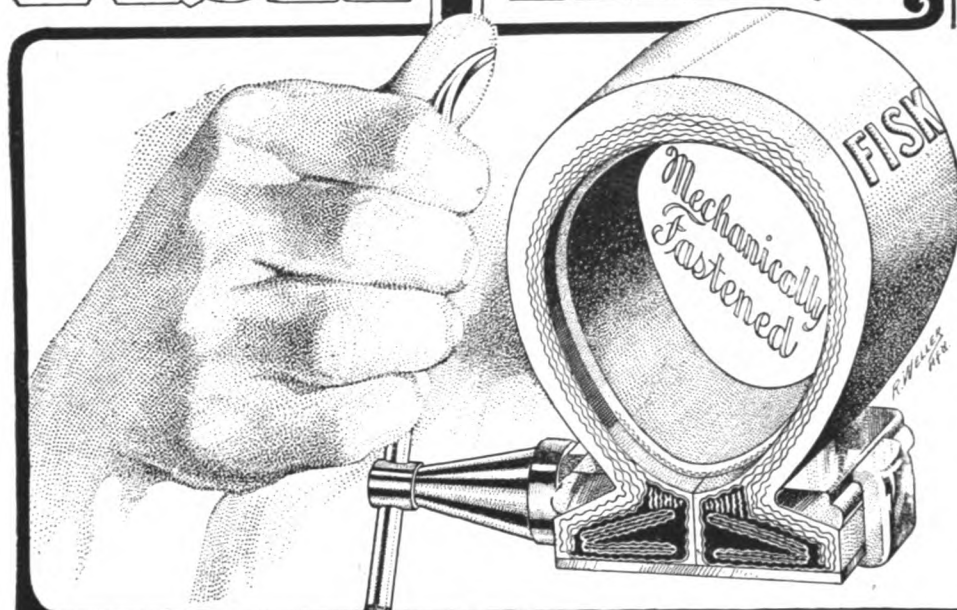
Import Figures Still Climbing.

Imports continue to climb steadily upward. The appraiser's report shows an increase for the first three months of 1906 as compared with the corresponding three months of last year. During March, 1905, cars valued at \$340,000 were imported, against 49 cars in the same month of 1905. Since January 1, 1906, 300 machines, valued at \$1,000,000, have been passed through the customs port of New York City. For the same three months of 1905, only 172 cars were entered.

FISK TIRES

SECURELY LOCKED
TO RIM

INSURING POSITIVE SAFETY



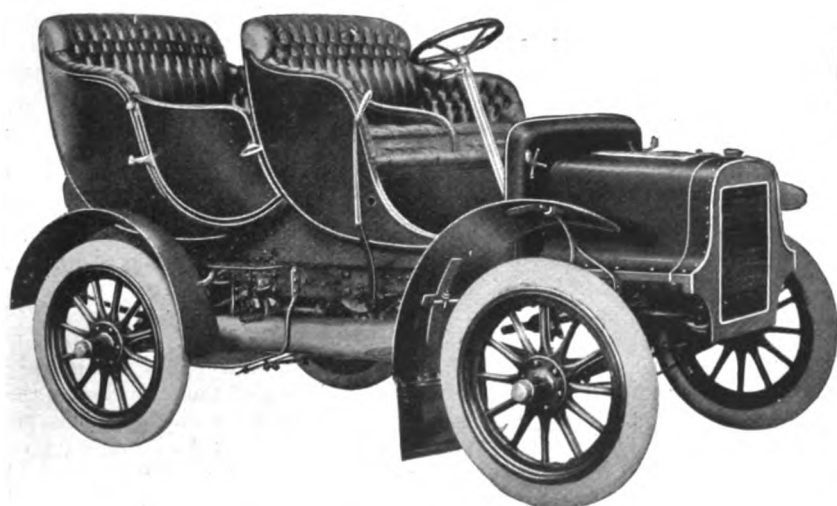
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EXCLUSIVE FEATURES
HAVE GIVEN
FISK TIRES
WORLD-WIDE CELEBRITY,

These points of advantage, combined with Durability (insured by the finest Quality and Workmanship) have caused there enthusiastic endorsement by every one of experience.

Note the Air Space
All above the Rim!

The Fisk Rubber Co.,
CHICOPEE FALLS, MASS.

THE FISK RUBBER CO. — CHICOPEE FALLS, MASS.



Cadillac Model M. \$950.00.

CADILLAC MAINTENANCE.

Cadillacs have the reputation
of being the **Most Economical**
Cars to Maintain.

HERE'S ONE OF THE REASONS:

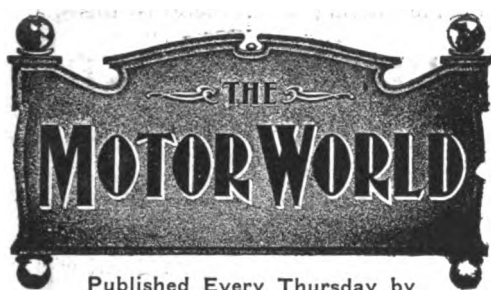
All parts, including those of the motor, are made according to our system of limit gauges. No piece is permitted to pass inspection if it exceeds the prescribed limits of measurement which in some cases are specified to the one-thousandth part of an inch. That is why there is right and that is why, when for any reason it becomes necessary to replace a part, that it can be ordered with the assurance that it will not require altering to fit and can be easily installed.

We cannot offer the argument to dealers that repairs on CADILLACS will pay running expenses so that profits on sales will be "all velvet."

Our catalog explains why the CADILLAC is THE CAR for the dealer and THE CAR for the motorist.

CADILLAC MOTOR CAR CO., - - - Detroit, Mich.

Members Association of Licensed Automobile Manufacturers.



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NEW YORK, APRIL 5, 1906.

Care the Price of Perfect Service.

There are those who still await the coming of the perfect automobile before investing, and it may be said without hesitation that they are not at all apt to purchase a machine this season any more than they have been in the past three or four years, although it must be admitted there was then more reason for holding back. It is not that the perfect automobile is no nearer to-day than it was then—this phase of the question does not call for comment, although there is a large part of the population that still regards the car as a mystery which may go or may not, as the whim strikes it. In that time the car has been perfected beyond the expectations of its most sanguine advocates and it may safely be said that it has attained a point where reliability and endurance are merely matters of intelligent care and attention on the part of the operator.

In short, the car has practically reached the status of the locomotive. After more than a century of development under conditions that have afforded a powerful incen-

tive to improvement, the locomotive is still considered a long way from perfection by its designers. How much more so is this the case where the automobile is concerned, when the unreasonable and illogical meaning given to the word by these doubting Thomases is taken. The latter gentry triumphantly select the locomotive and the ocean-going steamship as examples of reliability and endurance for the automobile to approach if it can, without considering for a moment that the former undergoes expert inspection daily and goes to the repair shops without a moment's delay if attention be required, while in the case of the latter the engine is pulled to pieces and thoroughly gone over at the end of every trip. Worn parts are replaced and painstaking care devoted to adjustment upon reassembling the engine so that every time a steamer leaves port its machinery is in the best of condition.

An automobile seldom gets a thorough overhauling more than once a year and in the interim is, in many instances, accorded but perfunctory care. As long as the motor continues to run, little attention is wasted in seeing that its various functions are being performed in a manner that makes for a uniformly high degree of efficiency. Repairs and adjustments are, more often than not, delayed until further procrastination is impossible and that time comes when the motor refuses to run any longer. The man who is looking forward to the advent of the perfect car is awaiting a mechanical millennium and it will be as far off as ever when he shakes off this mortal coil. The car that will be as simple as a bicycle and that will continue to operate efficiently when subjected to the same amount of abuse that was heaped on that all-enduring machine, represents a chimera of the non-mechanical mind that will never materialize. But a very close approach to its ideal may be attained by taking the up to date car and giving it proper and timely attention.

Code of Road Signals Suggested.

Someone has suggested that it would be a most excellent plan for motorists to agree upon some system of signaling between cars which pass on the road so that the occupants may be notified of dangers which lie in their path, may call for assistance, or direct one another as to turnings or crossings ahead. At first, it seems rather out of the question to hope to establish any set of rules by which communication of this sort could be established between cars

traveling in opposite directions, and yet on the other hand, the international horn signals between ships have been in use for many years and have now become fully standardized in all waters. In a similar way, it would be possible for motorists to come to a universal understanding in the matter and accept some system by which a great deal of mutual convenience might be accomplished.

Among the drivers of horse drawn vehicles in cities, the system of whip signals is used to a greater or less extent, it having come to be considered a matter of form with all good drivers to signal turns and pulls-up by swinging the lash. In a similar way among city drivers of motor vehicles, there is coming to be a fashion of raising the hand to indicate a stop, or an extension of the arm to the right or left, to indicate a turn which is about to be made.

This practice is quite essential to the smooth working of the machinery of the cities' traffic. On the open road, however, nothing of the sort obtains, drivers of cars being obliged to slow down when they wish to communicate with one another. And it is evident that were some agreement to be reached in the matter, either through the medium of some of the larger clubs, or through the trade press, considerable benefit might be experienced.

Aside from the use of the extended arm, which, of course, would be of but little benefit at night, there is a considerable range of possibility in the use of suitable horn signals. Thus, without going to the extent of employing the Morse alphabet for the purpose, a code could be arranged on similar lines using long and short blasts in certain sequences to indicate certain needs or warnings, and in this way two cars passing one another at rapid rates of speed might be brought into communication sufficiently so that their occupants might receive considerable benefit. For distress signals, or in case of emergency, a handkerchief might be fixed to one of the dash lamps in a certain predetermined position, or other means of signaling taken, which would avail at night as well as in the day time.

In itself, the matter is of little or no apparent importance, yet there is hardly a driver who has not longed for some such system at one time or another, and in many cases, as he well realizes, unpleasant, if not serious consequences might have been averted had he been able to take warning from another person who, in passing gave

him some unintelligible hail or signal, which could not be understood at the time. The actual establishment of such a code would not be at all a difficult matter were it formulated in a simple manner and one not likely to be misunderstood, and once a few motorists had been prevailed upon to adopt it, putting it into practice on the road, its adoption by the majority of road drivers would be a matter of but a short time.

Haphazard Lubrication Inefficient.

Probably there is no one thing that is calculated to shorten the life of the motor, as well as the car in general, as insufficient lubrication. Two metal surfaces cannot be rubbed under pressure without detriment to one or both unless provision be made for counteracting the effects of friction to as great an extent as possible. And a film of lubricating oil of a consistency adapted to the needs of the particular bearing has been found to be the only thing that will do this. But it is not entirely necessary that a car owner or driver should be conversant with the theories of lubrication in order to give this essential proper attention, although the lack of knowledge on the subject where the majority are concerned is strikingly apparent. Dumping oil on a bearing fulfills all obligations in this respect in the opinion of many motorists, and neither the quality, quantity nor the fact that the oil may not reach the spot intended seems to have any weight. It is merely a case of oiling—the oil should do the rest.

When fed directly to a bearing the question of its ingress so that a film may be formed between the two surfaces in contact is almost wholly a matter of design, and as was interestingly pointed out in the *Motor World* recently, a poorly designed bearing will operate directly counter to the function it is intended to perform. In other words, it will scrape off and exclude the oil from the bearings instead of facilitating its entrance. But all this is a matter for the designer and if a car be defective in this respect, no amount of care on the part of the owner will be sufficient to remedy it; nothing short of refitting the bearings in the manner shown to be absolutely necessary by current practice can cure it. However, there are extremely few modern cars on which the matter of lubrication has not come in for a very liberal share of attention.

But the best lubricating system ever devised needs constant and intelligent atten-

tion; it requires something more than that the reservoir should be filled regularly and the feeds turned on whenever the engine is run. The oil may not be reaching the bearings at all and the fact that it appears to be feeding so far as an inspection of the sight feed glasses is concerned will do little to save the bearing from seizing or being scored. Attention to the lubricating system means keeping the various leads free of obstruction just as much as it does maintaining the supply and not omitting to see that the oiler continues to operate. It means seeing that the oil is actually reaching the spot where it will do the most good and this usually implies considerably more than the perfunctory attention usually accorded this necessity of the motive power by the average motorist.

There are thousands of satisfied users of cars, but it will be noted almost invariably that those who take pains to make their experiences public dwell on the fact that regular and painstaking care of the various parts of the mechanism has been responsible, not alone for extended satisfactory service, but for a substantially decreased expense account. To quote a motorist whose opinions on the subject are expressed elsewhere in this issue, "There is one golden rule when in doubt and that is, over-oil if anything. The worst damage that can arise will be sooted plugs and perhaps a sticking valve, if automatic inlets are used, but under lubrication may mean serious damage and a heavy repair bill."

Value of Mud Guards for Chains.

It is something to be wondered at that during the years of use which have been granted to the chain system of final transmission for the motor car, no method of protection for the chain has been evolved and put into common use. In the days of the bicycle's greatest popularity, the chain guard came into very general use on drop frame machines, and proved beyond a doubt that some such protection for the driving chain was of the greatest benefit to its life and satisfactory performance. From its inception, the chainless type was provided with a complete enclosure for the gears and shafts, and similarly, its analogue in the automobile, the shaft drive, is to-day, thoroughly protected, and its cleanliness on this one account is used as a strong lever in arguing its advantages.

As for the method of transmission by chain running from a transverse countershaft to the rear wheels, or to the centre

of the driving axle, there is this much strongly in its favor above all else, that it automatically provides for the variations in level between the body and running gear as the machine follows the inequalities of the road. The radial action which is made possible by this arrangement eliminates the necessity of the universal joint mechanism which is one of the greatest drawbacks of the shaft drive principle, and thereby simplifies the transmission. Again, with the double chain system, the live rear axle is done away with, and the stability of that member thus secured with less expenditure of parts and less weight. In actual running efficiency, it is probable that the chain system has the advantage when it is in good order, and hence, of the two, it is in many respects the more desirable. But in the matter of protection lies the difficulty.

For the position of the chains, is usually such that they are exposed to all the dirt of the road, and are in no way protected from sand and mud, their very lubrication serving to increase their power of catching and holding particles of foreign matter which serve to increase the running friction and decrease the efficiency of the system. Yet it is perfectly possible to avoid all this by employing some sort of mud guard in the form of a complete enclosure, and a receptacle for the lubricant, which in this event may be fluid oil instead of the heavy grease usually employed. And, indeed, this would afford better results, the use of non-fluid oils now being compulsory.

So far as is known, there are only one or two machines now on the market which use any device of this description, yet these are comparatively simple, and are of the most inexpensive construction. In one which is fitted to an American car, the framework, which is of light metal supports a casing of heavy leather which though by no means handsome, yet serves its purpose to the best possible advantage, and is easily demounted when access to the chains is necessary. Probably an improvement over this method of construction would be the use of light sheet metal for the side pieces, with an angle iron framework of light yet strong construction as a skeleton upon which to mount it. Such a device might easily be contrived by any mechanic for the individual user, but taken in hand by a factory designer, it might be produced at a very slight expense, and added to the stock machine, would doubtless prove to be a most excellent "talking point," as well as a useful accession to the machine.

BELATED SEQUEL TO ORMOND

Earp Files Tardy Protest Against the Darracq at the Late Meet.

Although the Ormond meet is now a matter of history and although at the time England's representative, W. C. Earp, did not make any definite protest against the running of the Darracq cars, which it is claimed, had no differentials, since his return to his native shores he evidently has become impregnated with the typical British sporting spirit, which is to "win or wrangle." As England made but one of the records and did not win many of the trophies, due to the French Darracq and the American Stanley, and the English sporting spirit having become fully ripened by the salubrious effect of two months' native sunshine, that country has "decided" upon a way to secure some of the prizes, if not the records by protesting the Darracq cars at this late date.

First intimation of Earp's or England's dissatisfaction was disclosed this week by the receipt of a letter from the secretary of the Automobile Club of Great Britain and Ireland, formally protesting the Darracq cars and asking that the records made by them be wiped from the slate and that the prizes won by the stud of French machines be turned over to the cars that finished second to it. Earp finished second in one event. The letter, that part which makes the protest, is as follows:

"I am instructed by the committee of the Automobile Club of Great Britain and Ireland to call your attention to the fact that the Darracq car which competed in these events infringed this rule in that it was not fitted with a differential or its equivalent, and I am instructed to formally call upon you to investigate this matter, and further claim that the races won by the Darracq car shall be annulled and that all records made by it at this meeting and under this rule shall be annulled, and that all races and records which would therefore rightly belong to the six-cylinder Napier car, which was run in strict accordance with the rules, be awarded to it."

Rule 19 of the American Automobile Association's racing rules, specifies that all racing cars shall be fitted with a differential gear or its equivalent. It was known at the time for the Vanderbilt cup race that the Darracq car employed no differential and therefore, according to the rules, was not eligible to compete. However, as it had been allowed in speed competitions abroad, it was decided to let it compete here and, as is also now a matter of history, the Darracq won the race. At the Florida carnival all the other competitors were cognizant of the fact that the Darracq cars driven variously by Hemery, Demogeot, Chevrolet, Guy Vaughn, and S. B. Stevens, had no differential and although there was a whisper of making a protest at one time

during the contest, the author deemed it more sportsmanlike to withdraw it, which he did.

The action of the Automobile Club of Great Britain and Ireland, therefore, more than two months after the meet, comes somewhat as a surprise.

Just what action the racing board of the American Automobile Association will take, is not known, but there will be a meeting of the new board to-day (Thursday), when this and other matters will be discussed.

Storm Brewing in Ohio Legislature.

Ohio may have a State automobile law, if the Sawikie measure, which has just been passed in the House, meets with the same fate in the Senate. The bill nullifies all local ordinances and provides for registration by the Secretary of State. The license fee for all cars up to 30 horsepower is \$5 a year, only, and \$3 for each additional horsepower. Hired chauffeurs will pay an annual license fee of \$20. The speed regulations provided in the bill are one mile in six minutes in closely built up portions of cities or villages and one mile in four minutes in outlying parts of municipalities; one mile in three minutes in the country. The maximum penalty for violation is \$25 for the first offense, \$50 for the second, and for the third \$100 or ten days' imprisonment.

A Garcon, not a Garage.

If a little learning is a dangerous thing a mere nodding acquaintance with a foreign language is generally very amusing—to the bystanders—especially if it has to do with automobiles. Two men were talking on one of the down-town streets the other day when a well dressed young man, evidently a foreigner, passed and bowed to one of them. "Who is that?" asked the other. "He looks like an automobile driver." "No," replied his friend, "he doesn't run an auto. He's a garcon, not a garage."

Buckeye State Clubs Affiliate.

The Ohio State Automobile Association was formally launched at Columbus last week and it will become a member of the American Automobile Association. F. Scholes, of the Cleveland Automobile Club, was elected president, A. Audre, J. Baker, of the Columbus Automobile Club, and Val Dutonhoffer, Cincinnati Automobile Club, vice-presidents, and R. H. Cox, Cincinnati Automobile Club, secretary-treasurer.

Receiver for Milwaukee Concern.

Doctors P. H. and J. J. McGovern, of Milwaukee, Wis., have secured an order directing the B. P. Company, now the Milwaukee Motor and Mfg. Co., to show cause why a receiver should not take charge of its assets. The physicians purchased an automobile from the concern which they testified in court would not run, and they received a judgment for \$590.04. Failure of the company to pay the judgment resulted in application for a receiver.

ASHAMED OF THEIR BILL

Responsibility for the Stanley Measure at Albany Disclaimed by its Friends.

"It's your bill." "No, it isn't; it's your bill." This would appear to represent the attitude of the forces contending for and against the passage of the Stanley "State automobile commission" bill, at Albany, yesterday, for in response to Charles T. Terry's attack on the bill, which was repudiated by the Automobile Club of America at its very inception, John C. Coleman, of the West End Association, who is really responsible for drafting the bill, also threw it overboard. He said that the bill would bring in \$250,000 to \$300,000 and that the expense of the commission would be only about \$10,000 a year, but that the West End Association was not responsible for the bill and considered that it went too far. The association had accepted it at the request of the Automobile club of America," he added.

Mr. Terry, of counsel for the National Association of Automobile Manufacturers, characterized the bill as "another attempt of the West End Association to limit the rights of automobilists." He added that the Stanley bill was "confused and full of holes." "It is a little disingenuous on the part of the West End Association to come here every year proposing something a little more drastic than before. This bill creates an expensive commission with power to grant or revoke the right to use the highways and it makes conviction impossible under its provisions unless it can be shown that the speed limit was 'knowingly' exceeded. The only trouble with the present law is that it is not enforced and never has been, but only about ten per cent. of irresponsible automobilists fail to obey the law and it is the misconduct of the few that stigmatizes automobilists as a class. We believe in registration and identification, but there's a limit to our endurance, and a bill proposing a \$5 fee for licenses oversteps it. It is quite likely that automobilists will contribute to the support of good roads, but not if they have to pay \$5 for a bit of pasteboard." H. A. Meldrum, of the Buffalo Association, and H. A. Woolworth, of the Rochester Association, also spoke against the bill.

Mr. Carr, president of the West End Association, arose to speak in favor of the bill, and began by contradicting John C. Coleman, the association's counsel. "We thought this bill too liberal," he said, "and now that we have accepted it, the Automobile Club of America has gone back on it. The highways are abused, not by ten per cent., but by forty per cent. of automobile users who think that God Almighty has made them and that they own everything." Mr. Stanley urged that automobiles were practically locomotives running in the streets. No action was taken.

MUNICIPAL GARAGE WANTED

Talk of an Establishment for the Official Automobiles of New York City.

Now that the motoring lust has afflicted the heads of all the municipal departments of Greater New York, it would seem that an official garage is the next in order of innovation. Eight new machines have recently been requisitioned by the commissioners of four of the more important departments, and if they are purchased, these added to those already in use will make the city's equipment quite sizeable and of no mean importance, since a variety of cars are in use, and all are subjected to the most severe usage imaginable. The efficiency of the motor vehicle service in city work has been evident from the first, and the fact that there has been a constant demand for an increase in the equipment from each of the commissioners, proves beyond a doubt, the measure of their own appreciation of mechanical traction. It is rumored that a resolution is to be introduced before a meeting of the aldermen this week providing for the establishment of a municipal garage to be under the charge of a competent official who will oversee all repair work, keep the cars in perfect running order, and incidentally, make sure that they are not used, as it has been whispered about that sometimes they are, for private junketings on the part of the officials.

How the Salesman was Fooled.

That old saying about counting chickens before they are hatched has been brought vividly to the mind of a Nashville, Tenn., dealer, in the last two weeks. He got hold of a half-way prospective customer, so the story goes, and "sicked" the salesman on him. After three hours of good hard "chin work" the prospective purchaser was thoroughly convinced (so the salesman thought) and visions of a nice large commission danced before his eyes. The "prospective," however, remembered that he had an important engagement that must be filled, but left with repeated assurances that he would be right back in a few minutes and close the deal. He was back, all right, but just to pass by in a brand new car that he had purchased from a competitor. It is not stated what the salesman said as the man drove by, but it is learned that the gasoline tank had to be moved for fear of ignition.

Home-Built Cars for Tennessee.

"Tennessee cars for Tennessee roads," will be the slogan of the Southern Automobile Co., of Nashville, Tenn., who will shortly begin the manufacture of commercial vehicles, it is stated. J. H. Lawrence, who has been mechanical engineer at Vanderbilt University, will have charge of the factory. No details of the proposed cars have been given out as yet.

Where White has Room to Expand.



In the acquisition of the Sherman Square Stables, situated between 69th and 70th streets on West End avenue, by the White Sewing Machine Company, there is to be seen another significant reminder of the fact that the horse is giving way more and more to the rapid spread of New York's automobile district. The building is six stories in height and measures 50x100 feet, of semi-fireproof construction and adapts itself readily to the needs of a garage with trifling alterations. The plot on which it stands measures 100x100 feet and contracts have already been let for the erection of a three-story addition to occupy the vacant portion. This is expected to be ready by July 1, giving a total of 55,000 square feet of floor space, and the building will then afford accommodation for 325 cars.

The new premises will be devoted entirely to garage purposes, while the present quarters at 42 West 62nd street will be retained as a salesroom and garage, having a capacity for 175 cars, this bringing the combined garage accommodation for White cars up to the very substantial total of 500 cars. Bearing in mind the numerous changes made necessary in the past by the

rapid demands for space which brought the White plant from a 20 by 50 stable in 1902, to the five-story building in West 62nd street in 1904—then the "farthest north" of the automobile district, the new addition to the West End property has been planned so that four or five additional stories may be erected on it when further enlargement becomes necessary. The accompanying photograph depicts the newly acquired building which will henceforth "stable" White steamers.

Spokane Possesses a Factory Now.

A real live automobile factory for Spokane, Washington—that is one of the realities that has quietly come into existence and started work there without a blare of trumpets. And the Spokanites are happy, for does not the industry give promise of becoming great in time? Levi Rhodes, who calls himself an inventor, is responsible for the ideas which he will attempt to work out in steel. Levi has invented some kind of contraption whereby his machine can be made to use petroleum for fuel. If the first car is a success a big factory will be erected, it is stated.

BIRMINGHAM HOLDS RACES

Oldfield the Magnet—He Wins Two of the Three Leading Events.

Birmingham (Ala.) sport-lovers, nearly 5,000 strong, witnessed their first automobile race meet on Tuesday of this week at the fair grounds' mile track, when Barney Oldfield gave them exhibitions of fast going and evidently the green-shirted driver believed in "playing the whole hog or none," for he won every heat, except one, in which he started. The Peerless driver won both heats in his match race "for \$500 with Paul Albert, the German champion." "Herr" Albert drove a Mercedes and in both heats managed to keep his car even with the "Green Dragon." Whether or not Oldfield aided him, is not stated, but the time, although fast, was not equal to the capabilities of the Peerless. Later Oldfield drove a mile exhibition, making the circuit in 1 minute 4 seconds.

The meet originally was scheduled for Saturday but Jupiter Pluvius discounted it, and the surface was only dried out in time for Monday's meet by burning 50 gallons of low test gasoline upon it. The meet was highly successful, as 4,260 persons paid admissions, principally to see Oldfield, and the local automobile club netted \$792, after paying Oldfield sixty per cent. of the gate receipts.

The first event was a three-mile motorcycle race, which was won by Jenkins in 5:01. Oldfield, from scratch, captured the five-mile handicap in 7:00; E. W. Van Duzen, in a two-cylinder Reo, crossing the tape second. D. C. B. Van Duzen, at the wheel of a single cylinder Cadillac, finished third. Oldfield was not quite as proficient in the start and stop novelty race at three miles as E. V. Van Duzen, and he lost by a narrow margin to the latter. The other Van Duzen came in third. Then followed the first heat of the Oldfield-Albert match and the cars kept together all of the three miles, the driver of the Peerless finishing three feet in front. Time, 3:45. The second heat was quite as exciting to the Birminghamites, although the time was not as fast. Cadillac cars finished one, two and three in the three-mile championship of Birmingham, Van Duzen winning the title and W. E. Spink and Grey J. Huffman running second and third respectively. The summaries:

Five mile handicap—Barney Oldfield, Peerless, first; E. W. Van Duzen, 16 h. p. Reo, second; Don C. B. Van Duzen, 9 h. p. Cadillac, third. Time, 7:00.

Three mile novelty race—E. W. Van Duzen, 16 h. p. Reo, first; Barney Oldfield, Peerless, second; Don C. B. Van Duzen, 9 h. p. Cadillac, third. Time, 4:20.

Three mile match race between Barney Oldfield, Peerless, and Paul Albert, Mer-

cedes. First heat—Oldfield, first; Albert, second. Time, 3:45. Second heat—Oldfield, first; Albert, second. Time, 3:51.

Three miles, for championship of Birmingham—Don C. B. Van Duzen, 9 h. p. Cadillac, first; W. E. Spink, 9 h. p. Cadillac, second; Grey J. Huffman, 9 h. p. Cadillac, third. Time, 4:04.

One mile against time—Barney Oldfield, Peerless. Time, 1:04.

No Locomobile in Cup Race.

Just now there is considerable talk, most of which is speculative, about the manufacturers who are building racing cars for this year's Vanderbilt cup race. Nearly every large manufacturing house has been credited with having one or more cars under course of construction, and one of these is the Locomobile Co. of America. The report is unfounded, for the company has, it is stated upon good authority, no intention of building a racing car for the forthcoming contest. The car which finished so well last year was built to order for Dr. Harold E. Thomas, of Chicago, and whether or not it will again compete is not known.

Baltimore's Show Purely Local.

Baltimore is holding its automobile show—the first—this week, in the spacious new Mount Royal garage. It is being conducted by the Automobile Dealers' Association, recently formed for this purpose and, of course, it is distinctly local, Baltimore dealers showing all the exhibits. The show opened last Saturday night and will continue throughout the week. Among the cars being shown are the Maxwell, Marmon, Frayer-Miller, Knox, Pope-Toledo, Locomobile, Mitchell, Rambler, Lambert, Orient, Ford, Winton, Pope-Tribune, Pope-Hartford, Reo, Cadillac, White, Peerless, Stanley, Baker, Stevens-Duryea, Columbia, Haynes, Olds, Thomas and Packard.

Toronto's First Show.

Toronto's first automobile show was formally opened last Saturday night in the Granite Rink building by the Lieutenant-Governor of Canada, Mortimer Clark, after which he and other Dominion officials made a tour of the exhibits. The decorations in the two large halls are pleasing, and consist of an intermingling of Union Jacks and red, white and blue bunting, with here and there a American flag. Nearly all the prominent American makes of cars are represented, as well as the accessories and parts manufacturers. The exhibition will continue throughout the week.

Frayer-Miller After Vanderbilt Cup.

It is now stated authoritatively that there will be a Frayer-Miller entrant built to compete in the Vanderbilt Cup Race. It will tip the scales at 1,800 pounds and will be equipped with the Belden "Gearless" transmission. Three cars will be constructed for the event.

ALARMING THE RUSSIANS

Why a British Motorist was Obligated to Spend Three Days in Prison.

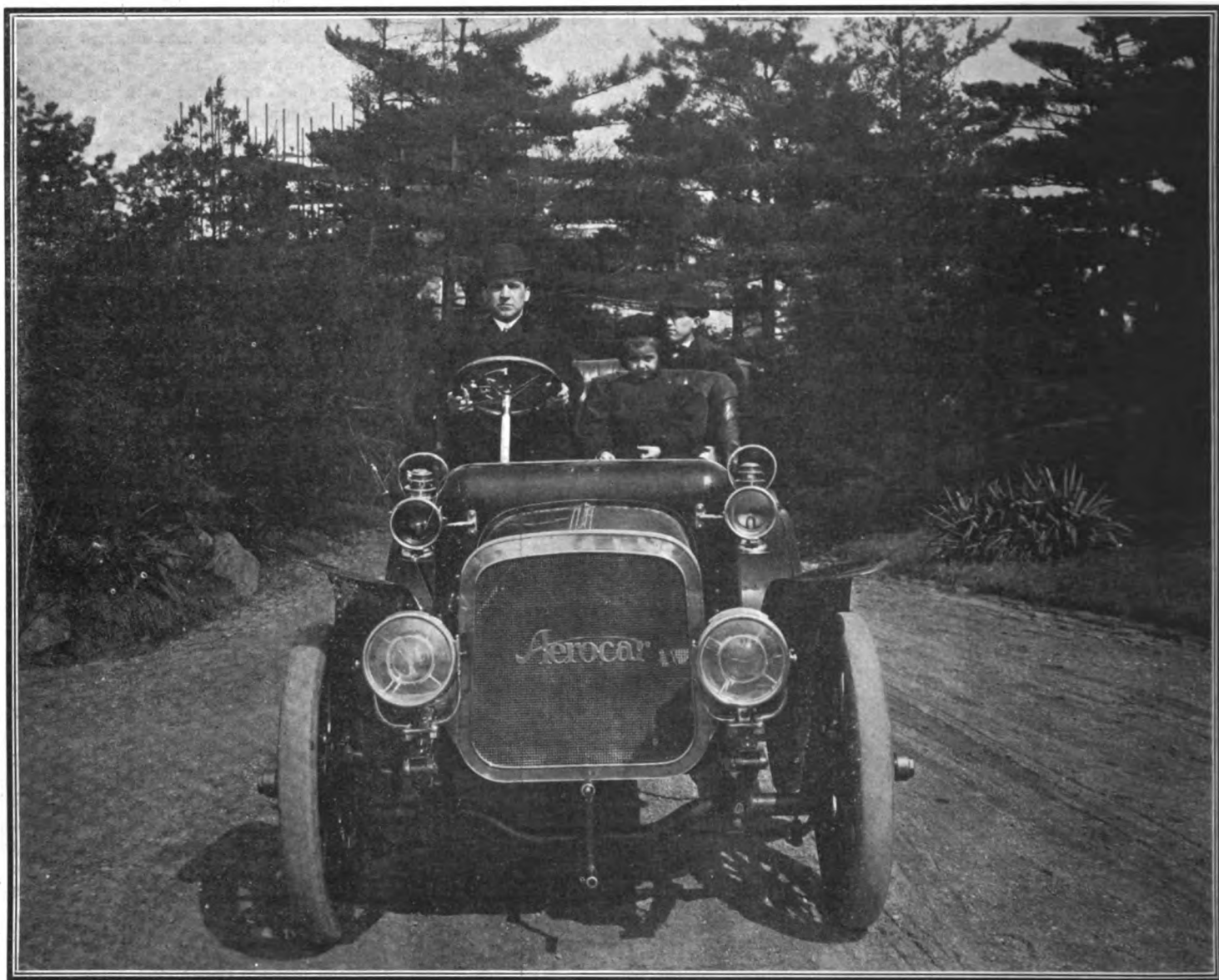
No matter who he may be, and what his point of departure, the tourist entering a foreign land burdened with an imposing array of impedimenta is invariably welcomed with a certain degree of inhospitable suspicion which is heightened if, by any chance, he is in any way invested with a taint of mystery. Just as our own immigration officers sort over the luggage of the poverty-stricken exile fleeing to these shores for respite from the tyrant's hand, even so the minions of his country look upon us and our neighbors, when we stray apart from the beaten track. A very good illustration in point is that of the experience of the Englishman who, intending to travel through the Russias by motor car, took with him along with his personal baggage, a portable tire vulcanizer. His experiences in entering the country are related by the Car, as follows:

"On arriving at the customs this was duly turned over, and the vulcanizer, among other things, examined, but beyond exciting a little curiosity the incident passed over, and the motorist proceeded to his hotel. He had hardly got settled down, however, when a Russian policeman entered and arrested him on suspicion of possessing a bomb or infernal machine, and although he did his best to make the Russian officials see that they were entirely wrong, he was taken to prison and kept there for three days until these suspicious individuals could get their absurd fears confirmed or dissipated. Enquiries were sent through to London, and the manufacturers of the appliance were approached, with the result that the officials found they were mistaken, and the immediate release of the English motorist and the return of his belongings, including the vulcanizer, were promptly ordered. Probably this was the first occasion the Russian officials had set eyes on one of these vulcanizers. The little steam gauge had been taken for a clock wherewith to ignite the supposed deadly explosive, while the tubular steam generator and the bright gun-metal finish of the whole appliance, doubtlessly encouraged the erroneous Russian impression."

.. Tacomas Elect and Petition.

The Tacoma Automobile Club, of Tacoma, Wash., will petition the city council of that place to widen the old disused cycle path to South Tacoma. It is thought that with a very little outlay it can be transformed into an ideal automobile boulevard. At the annual meeting these officers were elected: President, W. W. Pickerill; vice-president, W. O. Williams; secretary, Delbert Young, and treasurer, A. G. Prichard.

Alexander Y. Malcolmson Taking an Aerocar over the Road.



Remarkable progress for so young an organization has marked the career of the Aerocar Co., of Detroit, Mich., up to the present time. Two weighty essentials which have contributed to this measure of budding success have been the production of something worth selling, and a well backed financial organization. With a product which is capable of satisfying an existing demand, and something back of it to keep things moving, there is never any difficulty in finding a ready response from the public. And so it is proving with the Aerocar.

The car itself, seems to be striking just about right. It is of 24 horsepower, weighs 2,000 pounds, has a three-speed transmission with shaft drive, the usual pressed steel frame, runs on a 104-inch wheel base and has a smooth cut, roomy body which is neither too large nor too small for the running gear. Altogether, and counting the fact that it has an air-cooled motor,

which helps to sell it in some quarters, it is a good car for the price, and the price is good for the car. All of which go to make up a good selling proposition, for besides being a good looker, it is a "good actor," as they say of horses.

As to the organization, the "man behind," who is as important a functionary as the spring of a watch, is Alexander Y. Malcolmson, of Detroit, who is shown in the picture driving one of the cars. A successful coal operator before entering the motor car business, he first became identified with the Ford Motor Company, which he served for some time in the capacity of treasurer before becoming the moving spirit of the Aerocar company, an office which he still continues to hold. His duties there do not seem to interfere with his giving the newer organization quite all the attention it requires, however, and its business reveals the presence of a master hand at all times, and is being prospered accordingly.

Marysville Company Hangs Fire.

The fate of the Marysville (Ohio) Motor Car Company is hanging in the balance. H. Tarkington, who went there from Kokomo, Ind., last fall, to establish a motor car factory, has built a test car, but the Marysville capitalists seem to be fighting shy of taking stock. All Tarkington requires to set the works going is \$10,000.

Utility Car in Ontario.

Reeve Bobier, of Exeter, Ontario, is going to demonstrate to Canadians the utility of the automobile as applied to commercial life. He has ordered a car which he will use for hauling cream to his creamery; when it is not thus employed, passengers will be taken to and from Grand Bend.

The Belden Gearless Transmission Co., of Pittsburg, are equipping a new factory on Quincy street, Cleveland, and will occupy it in about thirty days.

VIRGINIA'S AUTOMOBILE LAW

What it Demands and Permits—Full Text of the Act—One Redeeming Feature.

Representative Byrd's automobile bill which was passed by the Virginia legislature and subsequently became a law, was very much toned down before it was signed by the governor, but it still is very amateurish, both in its provisions and in its text. The one redeeming feature is found in section fourteen, which makes the measure purely permissive, that is to say, the law will not become operative unless adopted by a recorded vote of the Board of Supervisors in each county. License tags are provided for naturally—\$2 a year is the fee—and the numbers must be four inches high. Speed limits of from 15 to 8 miles an hour are provided and penalties embracing fines or imprisonment or both, are prescribed. Also, the driver of a car must show his certificate each time upon passing a toll-gate, so the keepers will be enabled to keep tabs upon him.

The full text of Virginia's law, which goes into effect June 13, 1906, follows:

1. Be it enacted by the General Assembly of Virginia, that it shall be unlawful for any person or persons except in accordance with the provisions of this act to run, drive or operate any automobile, locomobile or any vehicle of any kind, the motive power of which shall be electricity, steam, gas, gasoline or any other motive power except animals, and which said vehicles shall hereafter be called machines in this act, on or along or across any public road, street, alley, highway, avenue or turnpike of any county, city, town or village in the State of Virginia, except and until such person shall comply with section two of this act.

2. Every owner of a machine shall register the same by making application to the Secretary of the Commonwealth for a certificate of registration. The application must contain the name of the applicant and his address and place of residence, the name and a brief description of the machine, with the number, if any, as fixed by the maker.

(a) The Secretary of the Commonwealth shall issue a certificate of registration in duplicate, giving the machine in question a number which shall distinguish it. One of the certificates of registration must be firmly attached to the machine in an easily accessible place, and shall be in form, as follows:

This is to certify that _____ is the owner of a machine numbered _____.

That his (or her) residence is _____; his (or her) postoffice address is _____, and that he (or she) hath obtained this certificate according to law on the _____ day of _____, nineteen hundred and ____.

Teste:

Secretary of the Commonwealth of Virginia

(b) A number plate must also be delivered to the applicant by the Secretary of the Commonwealth upon which the number assigned must be painted in Arabic numerals, not less than four inches in height, followed by the letters "VA." And this plate must always be in evidence upon the rear of the machine.

(c) The fee for the certificate and plate shall be two dollars (\$2.00), which amount shall be paid to the Secretary of the Commonwealth.

(d) If the owner of a machine shall furnish satisfactory proof of the loss of his certificate of registration or number plate, then the Secretary of the Commonwealth shall furnish one or both, giving the same number as originally held, upon the payment of the fee designated in sub-section c of this section.

3. Every machine operator in this State shall have displayed from one hour after sunset to one hour before sunrise at least one white light throwing a bright light at least one hundred feet in the direction in which the machine is going, and also shall exhibit on the rear of the machine one red light, which shall effectually illumine the number tag on the rear.

4. Should the owner part with the machine or any interest in it in the year following the date of the certificate, it shall be the duty of the purchaser to take out a new certificate in accordance with the provisions of this act; nor shall the number of any machine be changed during the life of the certificate, and there shall be only one number placed on each machine.

5. An operator of a machine shall not drive in the corporate limits of any city or town at a greater rate of speed than twelve (12) miles an hour. Outside of the corporate limits of any city or town a speed of fifteen miles an hour is permissible, except in going around curves, down sharp declines, or at the intersection of any cross-roads, or over the crest of hills, or in passing other vehicles or riders on roadways, when a rate of speed that will tend to avoid danger must be observed.

6. It shall be the duty of the owner or the driver of every machine run upon any turnpike upon passing a toll gate to exhibit his certificate to the toll-keeper who shall enter the name and address of the owner and the number of the machine, together with the hour and day of the passage through the gate of the machine, in a book kept for such purposes, which book shall be furnished all the toll-gate keepers by the several boards of supervisors. And it shall be the duty of the owner or driver of any machine to produce his certificate for inspection when so requested by the sheriff or any constable, policeman or peace officer.

7. Of the two (\$2.00) dollars to be paid for the said certificate, fifty (50) cents shall be retained by the clerk for the issuance of such certificate and the balance shall be turned over to the treasurer of the county or city and placed to the credit of said county or city for the purpose of reimbursing said county or city for the expense entailed by this act.

8. The following rate of speed may be maintained, but shall not be exceeded on any of the highways set forth in section one, of any city, town or village, or county in this State by any one driving a machine.

(a) A speed of eight (8) miles an hour around curves or bends or where the roadway is not plainly visible for a distance of two hundred feet ahead, and at the intersection of prominent cross-roads when such road or highway passes through the open country.

(b) A speed of eight (8) miles per hour where a street or highway passes the built up portions of a city, town or village.

(c) A speed of eight (8) miles an hour at points on any public highway when there is a gathering of horses or persons. Otherwise the rate of speed may be fifteen (15) miles an hour but not more, and this rate

is subject to the conditions set forth in the succeeding sections of this act.

9. The owner, operator, conductor, driver or occupant of any such machine shall keep a careful look ahead for the approach of horseback riders or vehicles drawn by horses or other animals and upon the approach of such riders or vehicles shall slow up, keep his machine under thorough and careful control, give ample roadway to such rider or vehicle and if signalled by such rider or occupant of such vehicle, or be otherwise requested thereto, shall immediately bring his vehicle to a full stop and allow ample room and time to allow such rider or vehicle to pass. And if requested so to do by the said rider or the occupant of said vehicle, the owner, operator, conductor, driver or occupant, if a male, of any such machine, shall lead the horse or horses past his machine. Should any horse ridden or driven in an opposite direction to that which the machine is travelling, give evidence of fright then the duty of the driver shall be the same as if he had been signalled to, by the rider of the horse or the occupant of the vehicle.

10. When the operator, owner, occupant, conductor or driver of such machine overtakes a horse or vehicle travelling in the same direction with himself he shall slow down his speed, signal for the road by bell or gong or horn and if the horse or other vehicle stop, shall pass at a rate of speed not greater than four miles per hour. Should such vehicle or ridden horse not stop and the said operator, owner, driver, conductor or occupant of said machine desire to pass he shall do so at a rate of speed not greater than may be necessary, and shall in all cases use due diligence and care not to frighten the horse or horses. In case of a machine passing a horse or vehicle going in the same direction the provisions of section nine of this act shall apply to the operator, owner, driver, occupant or conductor of the machine, except that in such case the horse or horses shall be held until the horse or horses become quiet, and then the machine may proceed.

Every machine shall be provided with a lock, key or other device to prevent its being set in motion, and no person shall allow any such machine operated by him to stand or remain unattended in any street, avenue, road, alley, highway, park, parkway or any other public place without first locking or making fast the machine as above provided.

Every machine shall be provided with a good and sufficient brake, or brakes, and shall also be provided with a suitable bell, horn or other signal device.

11. Any person failing to perform any duty imposed by any section of this act or violating any provision or condition herein set forth shall for each offense be fined not less than ten dollars or more than one hundred dollars or imprisoned in jail not less than five nor more than thirty days or both, in the discretion of the justice of the peace before whom the case may be tried. An appeal may be taken to the circuit court of the county or corporation or hustings court of the city, in accordance with the general law governing appeals in misdemeanor cases.

12. In addition to such fine or imprisonment any person violating any of the provisions of this act shall be liable for damages actually incurred by reason of such violation and the machine may be seized and impounded anywhere in any county or city of this State upon the order of a justice of said county or city in which the offense is committed and may, by order of the justice, be sold to pay such fine or damage. But before any judgment shall

be entered in said proceeding the owner of such machine shall have notice of the same by publication or otherwise, according to law and allowed an opportunity to make defense, and the driver of the machine shall be deemed an agent of the owner for the purpose of serving process.

13. In case when any such machine shall be impounded as provided in the preceding section and judgment be against the owner, the sheriff, constable or sergeant, as the case may be, shall fix upon a time and place for the sale thereof, and post notices of the same for at least ten days before the day of the sale, at three or more public places in his county or corporation, and shall publish notice of sale in some newspaper published in the county or city for two consecutive weeks. At the time and place so appointed such officer shall sell to the highest bidder for cash the said machine; and the surplus, if any there be after deducting the amount of fine, cost and damage, shall be paid to the owner of the machine.

14. This act shall apply to all counties in this State whose board of supervisors shall, by a recorded vote, adopt the same and to none other, and upon such adoption this act as to such county shall become immediately operative.

15. Nothing in this act shall apply to the machines known as traction engines, or to any locomotive engine or electric car running on rails or motor bicycles. Nor shall it apply to any incorporated city or town which now, or shall hereafter, have ordinances governing the operation of machines within their corporate limits, unless the council of such city or town shall adopt this act in accordance with the provisions of section twenty; and nothing contained in this act shall affect the right of any person injured in his person or property by the negligent operation of any machines to sue and recover damages as heretofore.

16. Every board of supervisors or council adopting this act shall at once notify the Secretary of the Commonwealth, who shall keep a record of the counties or cities so adopting open to public inspection.

Finds Honest Man Without Lamp.

Magistrate "Diogenes" Crane, of New York City, at last has found an honest man, or rather, this is the second honest chauffeur that has come under the arrant motorphobe's notice. When Christian Suhr, a Brooklyn chauffeur, was arraigned in police court Monday morning on the charge of having driven his automobile at the rate of twenty-five miles an hour on the previous day, and asked to plead, he said "guilty." After the first momentary shock, Magistrate Crane recovered sufficiently to think of words that would look well in the newspapers.

"Young man," he said, "I congratulate you. You have some manhood about you. When you grow older and perhaps grow rich, always try to keep that manhood and have consideration for others. Your picture ought to be enlarged and hung in the Automobile Club of America, with an inscription describing your honesty, as an example for others."

Despite his satisfaction at finding an honest chauffeur without the aid of a lamp, this follower of the Grecian philosopher held the driver in \$200 bail for trial in Special Sessions.

TINKERING IN NEW JERSEY

Senator Frelinghuysen's Measure Finally Reported to the Assembly.

Senator Joseph Frelinghuysen's measure was finally reported from the Judiciary Committee of the New Jersey House, which has long had it under advisement, for passage in the House of Assembly late Wednesday afternoon. The committee held a long executive session Tuesday morning and went over the bill with its author, Senator Frelinghuysen, and Senator Hoagland, who also favors it. The section relating to the creation of a State motor vehicle commission was struck out by a vote of 3 to 2 and some other concessions were made on both sides. The maximum speed limit is left at twenty miles an hour and the clause providing for imprisonment for violations of the speed limit was cut out. The fine of \$500 or imprisonment for sixty days is retained as the penalty for driving a car without a license, displaying a fictitious license number, or in case an intoxicated person is guilty of driving a car. Provision is made for appeals from the finding of the magistrate in cases of alleged violations. It finally was decided to report the bill and let the Assembly fight the matter out on the floor.

State Commission for New York.

Assemblyman Weber, of Brooklyn, introduced in the New York Legislature on Friday of last week a bill to provide for a State Vehicle Commission of three, to be appointed by the Governor. The members of the commission will hold office for a term of two years. They shall be paid only necessary traveling expenses, but are authorized to appoint a secretary at \$1,200 a year. The principal office of the commission is to be in New York City. Whenever injury or damage to a person or to the property of any person or corporation results from the operation of an automobile, it shall be the duty of the peace officers to investigate and send all the information to the State Commission, which shall hear and determine the case. The Board is given power to regulate motor vehicle traffic. In this way it is contended that the courts will be relieved. The act is to take effect May 1, next, if it is passed, with particular stress on the "if."

Electric 'Bus for a Cleveland Hotel.

Comfort and convenience are the watchword of American hotel management and nothing can be too up-to-date as a means of attracting custom to a hostelry, but it is only within very recent times that Boniface has come to a realization of the fact that they should be applied to the means of reaching the house as well. Ancient horse-drawn 'busses and worn out hacks have

been permitted to make an attempt at filling this requirement too long. A Cleveland hotel is the most recent convert to the automobile 'bus for carrying guests to and from railway stations and has signalized its adoption of modern methods by investing in a Columbia electric brake with a seating capacity for 17 persons beside the driver. The body of the vehicle is mounted on a regular Columbia Mark LII chassis, such as is ordinarily employed in connection with delivery wagon bodies. It consists of an I-beam iron frame from which is suspended the battery consisting of 42 of the 13 M. V. Exide cells. The car has a 92-inch wheel base and is fitted with 36-inch wheels equipped with 3½-inch solid tires. The current operates two motors driving to the rear wheels through a double reduction gears and individual chains and fully loaded the vehicle has a speed of 11 miles an hour.

Both Benefited by Automobiles.

The ways of publicity promoters are amusing, and especially so when they attempt to utilize the newest of practical inventions—the automobile—as a furtherance of their schemes. Recently an energetic individual spread broadcast the statement that the increasing use of the automobile had increased the consumption of chewing tobacco fifty per cent. in the last five years. The reason therefor was because "it is impossible to enjoy a cigar while whizzing along in an automobile." Immediately the press agent for a large chewing gum manufactory bestirred himself. The use of the automobile had not increased the chewing of tobacco, he explained, but it has promoted the sales of chewing gum. "Because a man who chews tobacco is compelled to expectorate and that causes annoyance to persons occupying the tonneau; chewing gum obviates this nuisance," it was further explained.

Winchendon to Have Transit Service.

The Winchendon Auto Transit Co. has been formed at Winchendon, Mass., to do a general transit business and three cars—two Oldsmobiles and one Reo—already have been purchased to start with. The company has elected these officers: President, John P. Bartlett; vice-president, Fred W. Brunell; secretary-manager, Charles H. Andrews; treasurer, Harry O. McColley, and directors, the officers and Herbert F. Ballou.

Prussia Educates Her Young.

In Prussia steps are being taken in the right direction in an endeavor to solve the accident question. The Prussian Minister of Education has issued instructions to the authorities of the various schools in the country that they should from time to time warn the scholars of the care they should take in crossing roads, owing to the increasing automobile traffic, and the risks they run in playing in the busy thoroughfares.

PROBLEMS OF LUBRICATION

Some of the Things Required in Addition to Proper Choice of Oil.

At first sight it might reasonably be supposed that every motorist and, indeed, every person who uses any kind of machinery, thoroughly appreciates the great importance of efficient lubrication, and in the abstract there can be little doubt that every driver and owner of a car has in his mind the fact that all the working parts should be oiled. And yet, although this is the universal idea, I believe that a very great many of the troubles which sometimes arise, even with cars of the best possible construction, are due to some error in the carrying out of this very important matter, says C. W. Brown in *Motor Review*. For instance, a great many drivers regard one oil as practically as good as another, and occasionally this may be sound reason so far as the best known brands are concerned, but the great consideration, always assuming that a really good oil is regularly employed, is to see that it actually suits the particular car on which it is used. There are several conditions which require careful consideration in the selection of the proper lubricant, but perhaps the most important is the amount of heating which is habitual with the particular engine under consideration.

With so many makes it is only natural to find that there are some that are more prone to become hot than others, and yet, under proper lubrication conditions, this fact does not necessarily imply that these particular motors are inferior. On the contrary I know a car which is one of the fastest of its kind, and yet the motor overheats to a considerable extent, but this apparent defect is easily counteracted by the employment of a suitable oil; one which develops its highest efficiency when moderately hot. As a rule it is more difficult to obtain an oil which has this characteristic than one of equal quality but working at its best at a lower temperature, because the heavy oils are more liable to "gum," and some become so congealed at a normal temperature that it is difficult to start the engine from cold without recourse to kerosene injections, which are not to be recommended if they can possibly be avoided, for the simple reason that kerosene is extremely apt to clog the valves. A good deal may also depend upon the condition of the pump, and it is very important that the water circulation should be kept in proper order and all the pipes cleaned fairly frequently—in fact, much more often than is usually the case—so that the motor may always run at an approximately even temperature. The failure of the pump to throw the required amount of water well means that the temperature of the engine will rise considerably, and then the ordinary oil which has suited it so well, will become too thin.

This will mean that more must be used,

but even then the effect is not perfect. It is a good thing if pump troubles should arise, to immediately obtain an oil somewhat heavier than that ordinarily employed, for otherwise it may be taken for granted that the lubrication of the engine will not be thorough. But there is a further cause for failure which is really mechanical, and this arises from the occasional stopping of one or other of the pipes. This more frequently arises in the case of cars provided with drip feed lubricators, and especially so when a heavy oil has to be used for any of the reasons already mentioned. And yet it is very rarely that the average owner takes care to see that all the pipes from the oil reservoir are really clear and that the lubricant passes freely through them. As a rule two or more of these pipes pass to the crank-case of the engine, but it should be recollected that the drip should be set so that both feed equally. It frequently happens that the sight glasses through which the drips should be seen, are so dirty that it is impossible to ascertain if the oil is really passing through the pipes, and hence it happens that probably only one is actually feeding the crank-case, so that the engine is kept very short.

For a time the motor may run even under these conditions, but all the same it is working under circumstances which are all the while causing damage, the extent of which depends largely upon the amount of shortage of oil. At the same time it is a fairly easy matter for the driver to ascertain whether the engine is being properly lubricated by the amount of work it is doing, although with multi-cylinder motors of high-power, the variation may sometimes hardly be noticed before material damage has resulted.

In cars which are fitted with pressure-feed lubricators of good make, there is far less danger of the engine running short of lubrication, but it must be remembered that as the reservoir which receives the pressure, usually supplied from the exhaust, is common to all the pipes, if one or more become choked, it follows that an extra quantity of oil may be forced through other pipes to those parts which do not require an excess, whilst the parts fed by the choked pipes are badly in need of lubrication. Therefore, even when pressure feed lubrication is adopted, care should be taken to see that the pipes are periodically and fairly frequently cleaned, by disconnecting them from the crank-case, or the bearings to which they lead, and filling the oil reservoir with kerosene, which should pass freely through the pipes.

Even this is not quite sufficient, and before the unions are screwed up, the glands leading to the crank-case and the bearings should be carefully cleaned, so that it is certain that the oil will pass freely. Naturally, if the crank-case receives sufficient oil, if only through one pipe, the engine will as a rule, be properly supplied, but it is clear that, in the case of the stoppage of a pipe leading to an important bearing, either

of the gear box or to the countershaft, the trouble will not correct itself, and it is more than likely that the bearing may run dry and seize, if not entirely at any rate partially. This is one of the most frequent causes of scored bushes and shafts, and it is generally to be noticed that a car the working parts of which are constantly requiring rebushing, has been neglected in the matter of lubrication. The bushes of the gear box may, and do, obtain a certain amount of lubrication from the grease within the box, but the amount depends upon the looseness of the bearings. As a matter of fact, a nicely fitted bush should not be able to obtain sufficient lubrication from the more or less thick lubricants employed in the average type of gear box, and if such a bush is not properly supplied with oil in the correct manner through a feed pipe, the bearing is certain to become heated, and scoring of the shaft will be likely to occur.

Therefore, great attention should be paid to the cleanliness of the pipes leading to bearing of gear boxes and countershafts, and a little time spent on looking to this detail will save many a repair bill, to say nothing of the vexation of being without a car while one or other bearing is being rebushed. Apart from this, there is the danger of absolute seizing, and when this takes place, it is extremely likely that a shaft may actually break. Probably taking all things into consideration, the best type of gear-box is that which is in one casting with the brake-case of the engine, because, so long as the motor is running properly, it is then certain that the gear-box will be lubricated, for, in this pattern, thick grease cannot be employed and, therefore, a certain amount of oil will work its way along the shafts and thus keep the bearings fairly well lubricated. But in the case of gear-boxes which are separate—and on the great majority of vehicles this is the type adopted—it is imperative that the bearings be properly oiled, because if light oil be used, it will be certain to escape sooner or later as the bearings wear.

Moreover, a thin oil does not suit some gears at all, and hence it is that so many drivers prefer to employ a thick grease for gear boxes. I have found in practice that the best method of ensuring the complete and constant lubrication of the gear wheels without involving waste of oils, to say nothing of the dirtiness occasioned thereby, owing to the escape of the lubricant round the shafts of the gear box, is to employ jeweler's sawdust. This is cheap, costing about ten or fifteen cents for a large bag. In a medium sized gear box, such for example as a small Clement, I have found that about a bag and a half of this sawdust is required. The dust is very fine and I think consists for the most part of boxwood. To about a bag and a half should be added about a quart of ordinary oil as used for air-cooled engines. This will readily mix with the wood and the result is a thick compound which will not

leak out around the journals. But the compound has this great advantage over ordinary grease, namely, that although sufficiently thick to prevent it freely passing out of the box around the shafts, it is yet more liquid than grease. If the lid be taken off the gear box and the change-speed lever be moved it will be seen that as the traveling sleeve carrying the wheels slides on the square shaft, the compound is 'pushed along in front of the wheels in a wave, but directly that the movement of the sleeve ceases the lubricant immediately finds its own level and does not remain packed up in a solid mass after the manner of ordinary grease. There is also another great advantage and this is, that the traveling wave containing as it does a mass of wood dust, forms a kind of cushion between them and thus the jar as the teeth come into gear is materially reduced. In fact, with ordinary care it is possible to pass completely through the middle gears without the least bang, and this in itself means considerable saving in the wear and tear of the gears because it is an admitted fact that the greatest damage done to gear wheels arises from the first contact when gear changing.

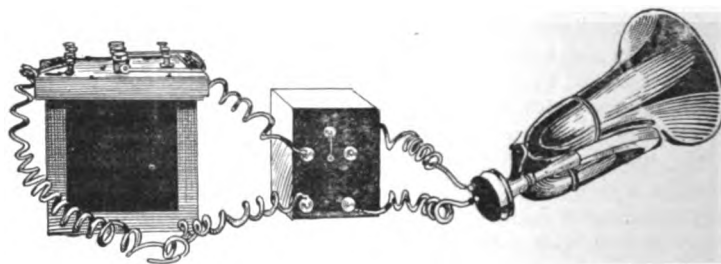
Apart from this very great consideration there is a marked diminution in the noise of the gears, while experience has demonstrated to me that the general lubrication is better accomplished. As the teeth of the wheels pass through the compound they pick up a certain quantity and as they engage the oil soaked up by each particle of wood is squeezed out upon the faces of the teeth, the wood being thrown off in a partially dry state as the teeth disengage. The particles fall into the great mass and immediately absorb more oil in precisely the same manner as a partially dry sponge thrown into water immediately takes up all the fluid it can hold.

The lasting qualities of the preparation are great. I have employed one lot for the last six or seven months and it appears in as good condition as ever, while there has been little or no waste. However, gear case lubrication is a matter which the user of a car can easily decide for himself. My object in this article is to demonstrate how highly necessary it is to give attention to the ordinary lubricating arrangements of cars and to show that a little time spent, once a fortnight or so, may be the means of saving a great deal of money in the matter of ordinary repairs. It is not merely sufficient to fill up the oil reservoir and turn on the feed; it is necessary to be certain that the lubricant actually reaches the bearings and that it is working under the conditions most suitable for the oil to give the best results. This latter is a far more difficult matter to solve than the merely mechanical one of a choked pipe, although if the truth be told, I believe that the greater part of lubrication troubles occur through carelessness in not attending to this latter very simple thing, and probably arise in a great measure through the

assumption that there is little fear of anything going wrong. So far as a choice of oil is concerned, it will usually be found that the manufacturer of a car will be willing to say what class of lubricant he has found to be best suited for that particular vehicle, but if not, many of the oil companies who make a specialty of motor lubricants will furnish a list of cars marked with the types of oil most suitable. In conclusion, it may be remarked that there is one golden rule when in doubt and that is, to over oil if anything. The worst damage that can arise is sooted plugs and perhaps a sticking valve, if automatic inlets are used, but under lubrication may mean serious damage and a heavy repair bill.

Miller's Electric Horn "Taking on."

One of the little novelties of the season which is sounding its own praises far and wide, is the electric horn which Charles E. Miller, of New York City, has placed on the market. Unlike some of the more conven-



tional types, this instrument is absolutely positive in its action, and gives a clear tone of uniform pitch whenever the circuit is closed. Another advantage which it possesses is that as the necessary connections are exceedingly simple, and may be multiplied to any desired extent, it is possible to arrange several of them in different parts of the car so that the passengers may sound the note of warning as well as the driver. Although it is new in this field, there is nothing novel in the principle of the electric horn, its active mechanism being identically the same as that used in any telephone receiver. A small diaphragm is placed at the base of the horn, and it set in vibration by the action of the intermittent current introduced by means of a magnetic vibrator similar to those used on ordinary spark coils. The primary current for the device is furnished by an accumulator of the common type, the current consumption being very slight, and hence the life of a battery charge comparatively great. The device is as simple as could be desired, and not likely to give trouble or to get out of order.

To Charge Electrics from the Sky.

When M. Michkin, the Russian inventor, has perfected his latest scheme, it will be possible to charge the batteries of electric vehicles without the necessity of having recourse to a regular charging station, at least so he says, and then, of course, one of the greatest drawbacks to the present

use of that type of motor traction will be done away with. The scheme in question contemplates nothing more complex than the use of a kite which is chained to the earth by a conducting cable, after the fashion of the famous Franklin contrivance, and by means of which, not the lightning, but the static electricity of the air may be caught and brought to earth.

In a recent experiment with a device of this sort, it is said that Michkin succeeded in driving a specially constructed motor which was wound to take a high tension current, its action being continuous except for a few minutes when the wind died down. If his idea proves to be useable, it may be that the story of the machine which was automatically recharged during a violent thunder storm, and which became a byword among the trade press for so long a time, while never being quite reproduced in authentic fact, may find an apparent counterpart in the time when every electric touring vehicle shall carry its kite and recharging

transformer, and either hoist its "trolley" and take its energy from the sky while en route, or tie up by the roadside, while its cells are revived.

Information Under the Front Seat.

Although it is the custom of motor car manufacturers when sending out new machines, to issue with them books of instructions in which every possible condition of normal use is discussed and directions for performing all the operations incident to the daily care of the car given in complete form, it is a well known fact that novices are prone to get into difficulties with their early machines. Almost invariably, the difficulty is one which might have been avoided had the directions been followed, and almost always the excuse given afterward is that the instruction book had been mislaid. In order to forestall any such possibility in its own case, the Electric Vehicle Company of Hartford, Conn., take the wise precaution of pasting a few concise rules as to the needs of the machine on the under side of the front seat of every car sent out, coating them with shellac to prevent them from being washed off. In this way the owner is very much at fault if he fails to oil the parts in the proper way, or otherwise misuses the machine.

James Blacklaws has instituted a rapid parcel delivery system in Rockford, Ill. He uses an 18 horsepower Rambler car for the purpose.

TO TAX CARS BY WEIGHT

Provisions of Senator L'Hommedieu's Bill Which Likely Will Become a Law.

Senator Irving L'Hommedieu's measure to impose a tax of one dollar upon every 500 pounds' weight of each automobile owned in the State of New York, is in a fair way to become a law. The measure has been reported out of and recommitted to various committees no less than a half dozen times. On Thursday of last week, 29th ult., a final hearing was given the measure at which representatives of several automobile clubs were present, and as they agreed to its provisions and practically pledged the support of their respective organizations, it is not doubted but that the bill will become a law. The full text of the measure, as it stands in its amended form, follows:

Section 1.—Subdivision one of section two of chapter five hundred and thirty-eight of the laws of nineteen hundred four, entitled "An act in relation to the registration and identification of motor vehicles and the use of the public highways by such vehicles," is hereby amended to read as follows:

Subdivision 1. Filing statement.—Every person hereafter acquiring a motor vehicle taxable under this act shall, for every vehicle owned by him, file in the office of the secretary of state a statement of his name and address, with a brief description of the vehicle to be registered, including the name of the maker, factory number, style of vehicle, the weight of such vehicle and the motive power, on a blank to be prepared and furnished by such secretary for that purpose; the filing fee shall be two dollars. Every person owning a motor vehicle, who has not filed a statement in pursuance of this section in which the weight of such vehicle is specified shall, on or before June first, nineteen hundred and six, file in the office of the secretary of state a supplemental statement of the name of such owner, the registered number of his motor vehicle and the weight thereof. The weight of a motor vehicle includes the weight of the tires, lamps, top and other equipment ordinarily used therewith.

Section 2. Such act is hereby amended by adding thereto the following new sections to be numbered sections nine, ten, eleven, twelve, thirteen, fourteen, and fifteen, respectively, to read as follows:

Section 9. State tax on motor vehicles.—An annual state tax of one dollar per vehicle, and an additional one dollar for each five hundred pounds or major fraction thereof in the weight of such vehicle exceeding five hundred pounds is hereby imposed upon every motor vehicle except motorcycles owned by a resident of this state except a motor vehicle owned by the manufacturer thereof, or by one whose principal business is that of a dealer in motor vehicles, but this exception shall not apply to a motor vehicle in the usual personal use of such manufacturer or dealer: nor shall the tax be imposed on motor vehicles constructed, owned and used for the transportation of goods, wares or merchandise, nor on any motor vehicle regularly let for hire and which is operated wholly within the corporate limits of a city. The tax shall accrue and be based upon the ownership of such vehicle on June first of each year. In case of the acquiring of the

title of a motor vehicle after June first of any year, other than one upon which the tax has been paid, the tax shall accrue with such title and be paid pro rata for the remainder of the year. The filing of a statement of weight of any vehicle registered with the secretary of state shall not preclude the secretary of state from determining the weight of any vehicle subject to tax. The term owner as used in this section and the subsequent sections of this act includes a vendee having the possession of a motor vehicle under a contract of conditional sale, although the legal title to such motor vehicle remains in the vendor.

Section 10. Lien of tax and payment thereof.—The tax imposed by this act upon a motor vehicle, together with any unpaid interest thereon, shall become a lien upon such vehicle on the date of the accrual of such tax. Within thirty days after such tax accrues, the owner of each such vehicle shall transmit to the secretary of state the amount of such tax; and the secretary of state shall issue to such owner a receipt thereof, specifying the name of the owner, the registration number of the vehicle on which the tax is paid, the weight thereof and the amount of tax, paid. If such tax is not paid within thirty days after the same accrues, the amount thereof shall bear interest at the rate of two per centum a month.

Section 11. Effect of failure to pay tax.—If such tax is not paid within thirty days after the same accrues as required by this act the owner of such a motor vehicle, notwithstanding his registration under this act, shall forfeit all rights acquired thereby, and shall be subject to the same penalties and liabilities, civil and criminal, for operating such vehicle upon the public highways, as if such vehicle were not registered. On the first day of June following the passage of this act the secretary of state shall prepare printed lists giving the numbers, owners' names and addresses contained in the applications for registration of automobiles on file in this office, and shall furnish a copy of the same by mail to the police department of every city and incorporated village in the state. On the first day of every month thereafter he shall prepare and distribute as aforesaid supplemental lists of all registrations during the preceding month.

Section 12. Collection of tax.—If the tax imposed on a motor vehicle by this act is not paid when due, the secretary of state may enforce its collection, with accrued interest, by an action against the owner thereof on the date when such tax accrued, in any court of competent jurisdiction; or he may issue his warrant under his hand and official seal, directed to the sheriff of any county of the state, commanding such sheriff to levy and sell the motor vehicle on which such tax and interest is a lien, if the same can be found within his county, for the payment of the amount of such tax, with accrued interest thereon and cost of executing the warrant, and to return such warrant to the secretary of state and pay to the state treasurer the money collected, by virtue thereof, at a time to be therein specified, not less than sixty days from the date of the warrant. The sheriff to whom any such warrant shall be directed shall proceed upon the same in all respects with like effect and in the same manner as prescribed by law in respect to execution issued against property upon judgments of a court of record, and shall be entitled to the same fees for his services in executing the warrant to be collected in the same manner.

Section 13. Exemptions from other taxation.—The taxes imposed by this act upon motor vehicles shall be in lieu of all other

taxes, general or local, to which motor vehicles as personal property may be subject under the laws of this state; and the owner of such a vehicle in the assessment of a tax provided by this act shall not be entitled to any deduction for debts owned by him either on account of the purchase of such vehicle or otherwise.

Section 14. Payment of tax before registration of motor vehicles.—The secretary of state shall not hereafter register any motor vehicle pursuant to this act, unless at the time of filing the statement required by section two of this act, the owner of such vehicle shall have paid such tax for the then current year, but if the motor vehicle for the registration of which application is made was not owned by a resident of this state on the date fixed by this act for the accrual of taxes for the then current year, such owner shall only be required, in order to procure registration of such vehicle to pay a tax proportioned to the length of time between the date when such a motor vehicle was owned within the state, and the first day of June succeeding.

Section 15. Application of taxes and filing fees.—Taxes and filing fees collected in pursuance of this act shall be paid into the state treasury, and shall be expended under the direction of the state engineer and surveyor for the repair and maintenance of highways constructed under the provisions of chapter one hundred and fifteen of the laws of eighteen hundred and ninety-eight, and the acts amendatory thereof and supplementary thereto.

Section 3. This act shall take effect immediately.

To Protect the Garageman.

Assemblyman James A. Francis's lien bill, introduced recently in the New York State legislature, which will, if passed, give garage keepers an unrestricted lien on cars which they have stored, repaired or otherwise cared for, has been referred to the general laws committee, which is expected to report it favorably this week. Dealers, naturally, are anxious to have the measure passed, as it will give them a chance to protect themselves from unscrupulous persons. The section, which is an amendment to the present lien law, is as follows:

"A person, partnership or corporation, engaged in the business of keeping, storing, cleaning, caring for, repairing and furnishing supplies and materials for automobiles, motor cars or other vehicles of any kind, and the parts and the accessories of the same, has a lien upon any automobile, motor car or vehicle of any description, or any parts or accessories thereof, whenever he is or shall become lawfully in possession of the same, notwithstanding the right and exercise of occasional possession and use by the owner thereof, and under an agreement with the owner thereof, whether such owner be a mortgagor remaining in possession thereof or otherwise, for the sum due him for the care, keeping, cleaning of such automobile, motor car or other vehicle, its parts and accessories and for work, labor and services performed and materials furnished in repairing of and for supplies furnished to the same, under the agreement, and may detain the automobile, motor car or other vehicles and the parts and accessories thereof until such sum is paid."

CAUSES OF MOTOR FAILURE

Statistics of a Public Service Plant, Showing Where the Faults Exist.

At a recent meeting of the Automobile and Cycle Engineers' Institute of England, when Col. Crompton's paper on the Unsolved Problems in Motor Engineering was under discussion, one of the members, who said that for the last three years, he had been in charge of cars running in public service which, during that period, had covered something like 800,000 miles, produced his analysis of the various causes of failure which they had developed. These were taken exclusive of tire troubles, which seem almost to belong in a class by themselves, and developed as follows: 45 percent due to failure of fuel supply and carburation; 25 percent to ignition; 23 percent to gear and clutch troubles; 6 percent to the engine from some other cause than ignition or carburation; and 1 percent to the differential.

The greater portion of the failures were entirely trivial, being in many cases caused by the mixture of water with the fuel; occasional difficulties owing to faulty design of piping, undue vibration in unsupported lengths, and lack of provision for expansion, involving breaks and leaks; the majority of these were found to have been remediable within a few minutes, once the fault had been located. Of the ignition failures, the majority were due to badly designed plugs or to magneto troubles. In the case of the latter, however, in no instance had remagnetization been found necessary. Most of these were the cause of only temporary stoppages, and were not due to important causes. A number of failures due to the keys on gear shafts being stripped had been experienced, making it apparent that the integral method of construction, or the use of integral flanges to which the gears were bolted, is much to be desired.

From these statistics, as well as from the general experience of the average driver, it is perfectly evident that by far the greater number of road stoppages are due to insignificant causes, and causes which well may be considered as needless. Perhaps nearly all of them may be laid at the door of the care taker of the machine, since they might have been anticipated had thorough inspection been maintained all over the car, and pains taken to eradicate any faults or impending faults as fast as they made themselves apparent. Not a few of them may have been caused by carelessness in design or assembly, the work of final installation of the more delicate parts only too frequently being passed over lightly by the maker in his haste to produce results. But whatever the real cause, it is apparent that the difficulties, no matter how numerous they may be, are in the main chargeable to the neglect of little things.

While it is perfectly true that the men

who let everything about the equipment of the machine go indefinitely, somehow manage, not infrequently, to get good service out of it, at least for a while, there is invariably a day of reckoning when the account has to be adjusted, and when it is found that there are many things needed in the general overhauling which has been found to be necessary. The man who is a "fuss-budget," on the other hand, and invariably spends hours each week in overhauling and inspecting the mechanism which apparently is in good shape, manages to get a total mileage out of his car which is simply astonishing. He is not used to breakdowns on the road, knows not the name of the mysterious stoppage which requires several hours of aimless search and dismantling of parts before its cause is located—and, what is more, the car which has been under this man's care comes out fresh and good at the end of the season, and is ready for another season's running while the motor of the other has to go to the repair shop to be overhauled again. The reason for the difference in the performance of the two machines is simply because the one has constant attention—such as any machine, no matter how constituted and no matter how well built, needs, and because all probable troubles are anticipated, and their coming forestalled. The ratios of the causes of breakdown cited above, serve as an apt illustration of this: They point to the fact that both the maker and the user can profit by nothing so much as constant and detailed care of the less substantial parts of the machine; and thus help to force home with emphasis, the pointed truths of the gospel of little things.

Another Armored Car for Gold.

Evidently gold mining in Mexico hereafter will not be complete without an armored automobile, for the order of L. M. Hart for a bullet-proof car from the E. R. Thomas Motor Co., was promptly followed by an order for a different kind of armored car for the Giroux Consolidated Mines Co., of Los Angeles, Cal. While the car ordered by Hart, as described in the Motor World, will be designed to afford complete protection to the engine and all working parts and the gold, of course, and will be equipped with rapid fire guns, the car ordered by the California company differs radically from the other, according to tentative plans. The car for the Giroux Company affords protection for the driver, guards and gold, but rapid fire guns will not be a part of its equipment, space being made for four guards and a complete arsenal. Harveyized steel is to be used and a compartment, the size of the complete body of the Thomas "Flyer," with a square top and roof covering is planned. Small port holes will be made in the armored sides of the moving fortress, to allow rifle sighting. The entrance to the "auto-fort" will be through the rear, where a double-locking steel door should sufficiently ward off any attack from the rear.

BAY STATE SOLONS PUZZLED

Automobile Legislation Undergoing a Process of Boiling Down.

Just what will be accomplished in Massachusetts this year in the way of additional automobile legislation is a question which many would like to know, and which not even the members of the legislature who were instrumental in the introduction of the many measures, can tell. The committee on Roads and Bridges, to which were referred the dozen or more bills affecting automobiles, closed a series of long hearings some time ago. Since then the different proposals have been considered far enough to show that not one of the bills in its natural state would suffice—there would have to be a compromise measure. The whole matter was therefore referred to a sub-committee of five, which now has the bills in hand.

The sub-committee has culled from the deluge of measures what it considers the redeeming features of each, and will present at a hearing to be held sometime either this week or next a compromise bill which it is hoped will be agreeable to both opponents and advocates of automobile legislation.

The draft of a compromise bill is said to include the bill offered by Judge Keys, of Concord, with a slight amendment. This measure provides for a speed limit of twenty miles an hour, any speed exceeding that constituting prima facie evidence of an infraction of the law. The amendment to this bill is the provision of a quarter-mile test course over which the speed must be determined. The bill also provides twelve miles for thickly settled districts and eight miles at corners and crossings. It is understood that it also contains the measure introduced by Dr. Francis Sprague, in abbreviated form. This provides for the placing on file of first and second offences of unintentional violations of the law, or violations where extenuating circumstances are proved. The third offense under this bill, revokes the license of the person convicted, for a period of not less than fourteen days. For driving a car with "wanton recklessness so as to endanger the lives or safety of the public," the punishment proposed in the compromise measure is a fine of not more than \$100 or imprisonment not exceeding six months. A conviction under this section also automatically revokes the license and registration certificate of the person convicted, for thirty days and may be renewed at the discretion of the Highway Commission.

The time now set for the presentation of the bills is this week, but it is likely that the committee on Roads and Bridges will ask for an extension of time, as the Massachusetts State Automobile Association proposes to take the committee on an automobile trip through the State before it makes a report.

PROTECTING TRADE MARKS

Amendments to the Existing Law Which will Eliminate Inconvenient Provisions.

Washington, D. C.—The House Committee on Patents, to whom was referred the bills for the amendment of the United States laws relative to registration of trade-marks, has referred back to the House the R. 15,911, with amendments and the recommendation that it shall be passed as amended.

One of the amendments proposed is for the purpose of meeting the objection that, in ordinary cases, a trade-mark needs no description, and that often an attempt to describe it is likely to prove a limitation to the right of the applicant, since if the infringers' mark does not come precisely within the written description it would be held not to infringe. It is the opinion of the committee that there is never a case where a description is either needed or desirable except when colors are used, and the amendment provides for this when the colors do not appear in the drawing.

There is a further provision to provide for the establishment of classes of merchandise for the registration of trade-marks, the same to be arranged by the Commissioner of Patents, and for the determination by him of the particular description of goods to be comprised in each class. It would then be the rule that on a single application for registration of a trade-mark, that trade-mark may be registered at the option of the applicant for any or all goods upon which the mark may actually have been used which are comprised in a single class of merchandise, provided a statement shall be filed showing the particular goods to be covered.

This is in line with the provisions of the trade-mark laws of nearly all commercial countries. In England there are fifty classes, in Germany forty-two, and in France seventy-four. Up to 1903 it was the practice in our own patent office to allow the mark on an entire class of goods to be registered on a single application, but in that year a ruling was made to the effect that, under a proper construction of the statute, a single trade-mark would cover merchandise of substantially the same descriptive properties, since section seven of the statute gave a remedy only to those who placed a mark upon such goods. Since that time and since the passage of the Bonygne bill there has been much complaint. Manufacturers have made statements to the committee to the effect that where, under the former practice they could protect all their goods by from one to three applications, they would now be compelled to make from ten to seventy-five, and, of course, pay a separate fee upon each application.

While foreign countries are willing to protect American trade-marks, such countries base their registration on that in the country of origin, therefore the American

manufacturer who produces a certain class of goods, and is obliged to split up his application, must do the same in every country where he seeks registration of his mark. Besides the inconvenience to which our manufacturers are subjected by reason of this rule, the pecuniary advantage enjoyed by a citizen of a country which will permit an entire class to be registered on a single application is not inconsiderable when it is remembered that, in some countries it costs from \$50 to \$75 for each registration of a trade-mark. Under the present ruling various goods of the same class cannot be included in one registration, but separate applications and fees must be made for each article of the class. The Commissioner of Patents is in accord with this proposed change.

Another change in the present law is proposed so as to allow any citizen of a foreign country who has manufacturing establishments located within the United States the same rights and privileges for the registration of his trade-marks used on the products of such establishment as are enjoyed by our own citizens.

India's Automobile Enthusiasts.

A novelty in "automobile dinners" was introduced at a recent club function in far-off India. The table was decorated with six large blocks of ice, each cake containing frozen in the centre a miniature automobile illuminated with electric lights, the ice being draped with Union Jacks, naturally. The menus were miniature gold and white cars, and the bill of fare written on the canopy. Pairs of goggles constituted the favors.

Dressmakers Find a New Field.

One or two of the very fashionable Parisian dressmakers are now advertising to decorate automobile "boudoir" interiors. Some ultra-fastidious persons are not satisfied unless they sit at ease in a limousine upholstered in lilac satin broadcloth, plentifully festooned and trimmed with real lace. And the supposition is that this sort of decoration belongs more to the petticoat trimmer than to the body-builders.

Tennessee's Champion Buyer.

Edwin E. Sweeney, of Nashville, Tenn., claims the distinction of having owned more automobiles than any other resident of the Volunteer State. Sweeney's first car was a Toledo steamer, which he owned in 1901, and since that time he has purchased twenty-four machines, embracing gasoline, steam and electric.

The Car with the Trail of Perfume.

Like the big gooseberry and the serpent, the lady who uses sweet scented gasoline in her car, rises perennially in the newspapers. She has lately been resurrected and, of course, the process of leaving a trail of delicious aroma is a professional "secret" that is worth a large fortune.

READY FOR A BREAKDOWN

British Invention for Hitching up when the Motorist is Obligated to get a Horse.

An English cabby has made a wonderful invention. In doing so he has evidenced a careful display of the English sense of humor, which has for many years made the columns of Punch as sad and gloomy as the fogs which drive the sturdy Britons to red coats and brandy and soda.

Again the face of the horse lights up with its rare old smile; the equine grins again, almost giving vent to a hearty horse laugh.

In late years the faithful animal, to use a slang expression, has been "put on the pig" by the automobile, but now the inventive Englishman has come to its rescue and invented an automobile which can be hitched to a horse when it breaks down.

No more can the automobile be called a horseless carriage. It has lost that glorious distinction. It has gambled against the brains of an Englishman, and now has a horse on it. It is now a horseful carriage, but there are a few points which the Englishman's sense of humor has overlooked.

What is to be done with the horse while it is not needed? This problem affords chance for speculation, even to an Edison. The horse is intended to be used in the marvelous double motive power machine only when the automobile portion breaks down. Heretofore the machine has simply been tied to a wagon and pulled home, but the thoughtful Englishman has prepared a regular hitching arrangement for the horse, and so a place for the horse while he is not needed must be considered.

There are numerous splendid ways of doing it. In one of the large touring machines a little stable might be built in the rear, and the horse carried with the party at all times, or of this would require too much space the animal might be hypnotized before starting out and strapped to the trunks. Yet this would mean the continual presence of a professional hypnotist in order to insure the awakening of the horse in case of a breakdown.

Probably a more feasible plan would be to put the horse on large ball-bearing roller skates. A rope could be then tied about its neck and shoulders and it could be skated over the country behind the automobile.

The Englishman has made a wonderful invention, but it can be foreseen that he is likely to have trouble in hauling a horse around until the animal is needed.

This Hearse was too Speedy.

No one is immune once he finds himself before the bar of justice with an accusing policeman and his stop-watch to press the charge, for a magistrate has even fined a chauffeur named Hearse for overspeeding.

MOTOR CARS AID COLONIES

What the Modern Vehicle has Accomplished in Opening up New Countries.

Although comparatively new in its practical application to commercial uses, the advantages of the motor vehicle in the pioneering of new countries has been recognized for many years by far-seeing individuals, and more than one attempt to put the idea to a test was made in the days when its development had not been carried to such a point that it was thoroughly dependable even in domestic usage, to say nothing of its fitness for the rough and tumble of work in undeveloped communities. One of the first of these projects to take shape was formulated some seven or eight years ago when a company was formed which entered into an agreement with the French government to run a motor vehicle transport line from Kayes to the river Niger, in Senegal. A dozen wagons were purchased and sent out, the DeDietrich house supplying them, and the type being that of the Amedee Bollee system. After the shipment took place, nothing more was heard of the venture for several years, and then it was told how the service of the desert had been too rigorous for the machines.

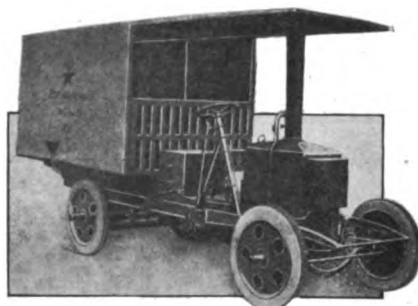
The next colonial enterprise which followed some time later took root in Madagascar, to which a number of Panhard wagons were sent. Chiefly because of a thorough-going and business-like organization, this attempt has succeeded, and the service is still in operation. Roads were built to the various points to be covered, stations for the storage and replacement of parts were established, and every possible precaution was taken to ensure success, even to the training of a number of soldiers as mechanics, under a competent officer who had full control over the operation of the line. As a result of this, a good measure of success has been secured.

Still more recently, a venture was made in this country which resulted with far less of merit to its promoters, and indeed, turned out to be an abject failure. This was nothing more nor less than the sending of three or four American machines of a half-developed type out to Alaska, to be run from Nome into the interior, a distance of perhaps sixty miles, over an excellent road, and at a time when fabulous amounts were being paid for transportation by any means whatsoever. There was every reason to suppose that a journey of a couple of days' duration could be abridged to a matter of ten or twelve hours. When brought to the spot, however, the machines refused to work, and after a period of agonizing trial, the attempt was given over, although probably to this day no one knows just why the cars could not be made to go.

But to return to the more happy results of other attempts, that in Madagascar, for example, has proved beyond a shadow of a

doubt that it is far more economical to open up a new country with motor cars than with railways. A permanent railway is out of the question at the outset, unless, of course, the government is prepared to maintain it for a strategical or other reasons, while the narrow gauge and the portable railway are dropping out of sight except for plantation and constructional work. It is of far greater value, all things considered, to lay down a good highway, than to lay a railroad, for the reason that the former is of more general utility to the community, and because it facilitates motor traction, which costing less than that by rail, where comparatively light freights are to be carried, is also more convenient.

As an example of the present adaptation of the motor vehicle to pioneer work of this sort under conditions which would seem to preclude all possibility of its success, the Motor Review gives the following



description of a South African propaganda, and the way in which some of the difficulties have been met, even at the expense of what, from an engineering point of view, would appear to be a retrograde movement.

"Nowhere has the experience of transport of all kinds been more extensive than in the Congo Free State," says the article in question, "where the government early saw that the only satisfactory means of opening up a virgin country was by motor wagons. At first it was proposed to take advantage of the facilities possessed by the Congo Free State for the unlimited production of cheap alcohol by employing this spirit as fuel. Wagons with alcohol engines were ordered in Belgium, and arrangements were made for creating distilleries all along the road which is being laid out between the coast and the sources of the Nile. Several of these wagons were imported, and the distilleries started work, but the authorities very soon saw with regret that the human consumption of alcohol was much greater even than that of the engines, and it was clear that the huge production of alcohol would keep the natives permanently unfit for work from one end of the Congo Free State to the other, even if it did not kill them off altogether. As the natives could not be prevented from freely indulging in their taste for alcohol the government had no alternative but to give up the distillation of the spirit.

"Then the Congo Free State authorities began to make experiments with steam en-

gines. Some Thornycroft vehicles were imported and, while doing good service, were found to be too heavy for the roads; moreover, in the absence of coal and coke the only type of vehicle that could be conveniently employed was one burning wood. The authorities therefore instructed M. Robert Goldschmidt to design a special type of steam wagon of which a number have already been built by John Cockerill, of Seraing, and have been sent out to West Africa. It must be admitted that M. Goldschmidt has performed quite a remarkable feat in the designing of his little steam wagons. A small square flash generator is carried between the ends of a channel steel frame and over the front axle. It has a very large grate into which wood is fed, and as there is nothing to clog the grate the fire needs no attention except to feed it as required, while the draught can be regulated to keep the tubes constantly hot for flashing the water into steam. The wood is carried in a box behind the generator, and forms a seat for the driver. The engine is of the four-cylinder horizontal type and develops from 15 to 20 horsepower. Power is transmitted by chains to the driving wheels. These are of the Arbel disc pattern and have channel rims into which are fixed wood blocks forming the tires. The body is built up of light wood framework covered with canvas, while the top extends forward and is supported by the chimney. The weight of this wagon without fuel and water does not exceed a ton, and the vehicle carries a load of one and a half tons. These vehicles are to be used on a road of about 750 miles extending through the Congo Free State to the sources of the Nile. At stages of 25 miles there are to be depots with sawing plants and water supply for replenishing the wagons.

"The main object in employing such light wagons is to reduce the cost of roads and bridges which would obviously be ruinous over such an enormous distance if they had to be made with a sufficiently firm foundation to support the traffic of much heavier vehicles. These little steam wagons are themselves to be used for conveying the material used in the construction of the road and bridges, so that the regular service will extend with the pushing of the road through the Congo territory. The Congo Free State wagons are particularly interesting as showing that, contrary to the usual belief, there is plenty of latitude in the designing of special vehicles for colonial use. In the British colonies there has so far been no alternative between heavy steam wagons and gasoline cars. The one needs good roads, and the other is somewhat costly in countries where gasoline is dear and scarce, and there is no doubt that in South Africa and elsewhere there is a vast amount of useful work to be done in the laying of cheap roads upon which fairly light wagons can run, employing fuel the most easily obtainable in the different territories."

NEW SIX CYLINDER SYSTEM

Method by Which Space is Economized— Details of the Device.

Flexibility—that goal ever beckoning the gas engine designer on, has resulted in the adoption of the six-cylinder engine as the motive power of stock touring cars in a number of instances and of an eight cylinder engine in at least one case. But having achieved a point where the desired number of impulses per revolution to bring about the long sought uniformity of torque has been definitely settled, at least for the time being, there are many who are not content that this should merely mean a duplication of units of the existing type. Their aim is to retain the number of explosions per revolution, but to condense the engine to a point that will bring it well within the compass of the average four-cylinder type, and the result has been the creation of a number of ingenious motors.

One of the most recent of these is a three crank, six cylinder motor, the simplification being brought about by superimposing three of the cylinders on those that drive direct to the crank shaft. The motion of the three upper pistons is transferred to the cranks by means of side yokes connected to cross pins, extending through slots in the cylinder walls. The pistons in each pair of cylinders naturally move in unison. The tandem arrangement of the cylinders described will be clear from a reference to the sectional elevation, Fig. 1. All the cylinders work on the four-cycle principle, and

are two explosions simultaneously behind pistons traveling in opposite directions, should conduce to an almost perfect balance. When the cylinder shown in the end

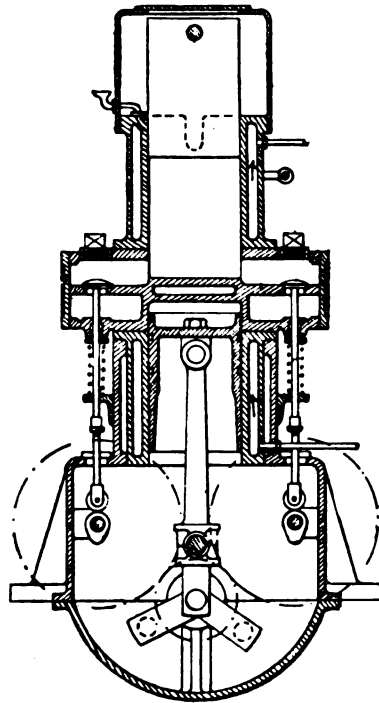


FIG. 1.

elevation is exhausting an explosion is taking place in its tandem mate just above it and the same is true of the lower cylinder of the contiguous pair.

The superimposed cylinder heads are sep-

arated by a watercooled partition, the cooling system in general not embodying any distinctive features. The two cylinders are bolted together, the valve casings overhanging at each side as indicated. The valves are oppositely disposed and are all mechanically operated, the inlets for all six cylinders being placed on one side and the exhaust valves on the other. Hand holes are provided in the overhanging valve casings to permit of inspection and the same is true of the upper ends of the superimposed cylinders. They are supplied with light covers to exclude dust and dirt. The upper ends of the pistons are recessed and it is suggested as a modification that they may be channeled at the side facing the inlet port in order to facilitate the passage of the incoming charge. The details of the arrangement will be clear from the side elevation shown partly in section in Fig. 2 and the sectional elevation of the cylinder heads and valve chambers in the left hand of the same sketch.

Another Way to Compute Horsepower.

One more has been added to the already over-full list of approximate methods of obtaining the horsepower of a gasoline motor, the latest, though not so simple as some of its predecessors, having the appearance of a greater degree of accuracy than some of them have had. It is, multiply the bore by the bore by the stroke, by the number of impulses per minute, and divide the continued product by 6,500. The cylinder dimensions are invariably to be taken in inches. And the result is said to be fairly accurate for all motors having an initial compression of 70 pounds per square inch, or thereabouts.

Unfortunately, considering the degree of interest which is usually manifested in that somewhat extensible quantity, the horsepower of the internal combustion motor can be obtained only by means of actual test, or else through a calculation in which various assumptions are taken into account.

In the use of any rule taking into account only the size of the motor and not its speed, only the vaguest sort of a result can be obtained. Thus, the old rule, divide the cube of the bore by three—or four, as it is sometimes given—is by no means reliable and is hardly better than guesswork. Any rule which takes into account both the cylinder dimensions and the speed; on the other hand, will produce fairly good results for all motors yielding a mean effective pressure nearly equal in value to that obtained in the test from which the formula was derived.

The reason for this is that the standards of design are becoming so well established at the present time, that machines of the same type produce, under normal conditions, about the same mean effective pressure per square inch of piston area, for the same amount of initial compression, and hence, by taking into account the piston speed and the cylinder area, and using a constant based on the average value of the pressure, a close approximation to the correct may be obtained.

In case the cylinder dimensions are given in the metric rating, the same process is carried out except the constant used is 110,000,000, instead of 6,500, the result coming out in horsepower as in the first case.

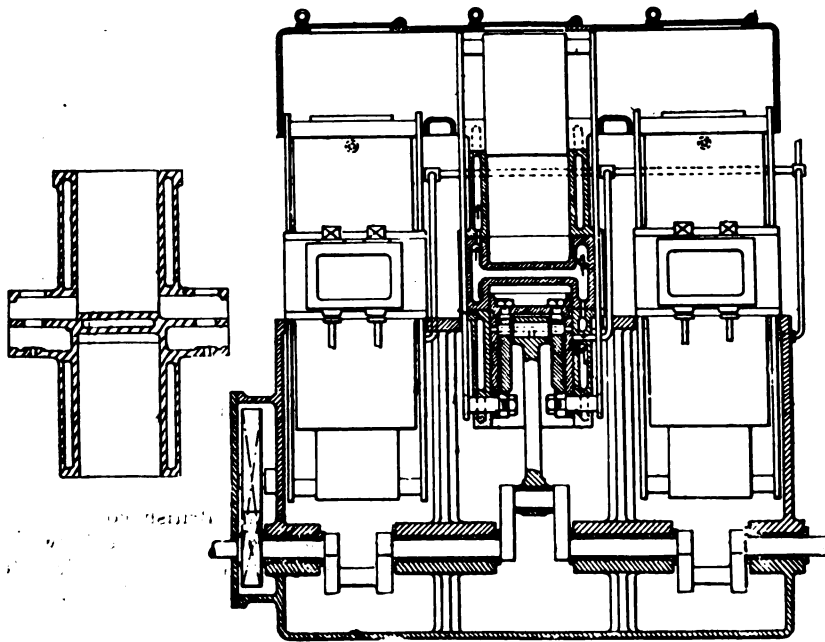


FIG. 2.

at the position shown the lower cylinder of the pair is about to fire, and as it descends on its power stroke it pulls the upper piston down on its compression stroke—an arrangement, which in connection with the three throw crank and the fact that there

are two explosions simultaneously behind pistons traveling in opposite directions, should conduce to an almost perfect balance. When the cylinder shown in the end

NEW YORK AUTOMOBILE LAW

Full Text of Assemblyman Cox's Amendment as Passed by the Legislature.

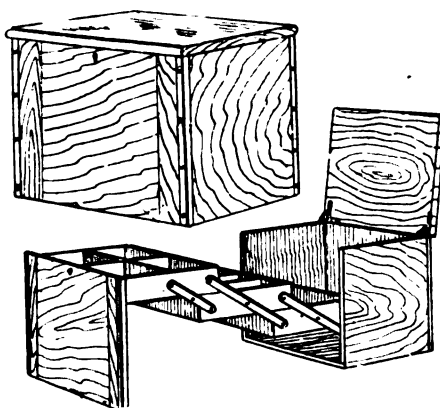
Assemblyman Robert Cox's amendment to the present automobile law, which has been passed by the New York State legislature, will undoubtedly become a law. In addition to allowing motorists to deposit cash bail or leave the car in lieu of security when arrested for any alleged violations of the law, Mr. Cox's bill provides that an automobilist may be released from custody on giving a bond executed by a legally organized fidelity or surety company. The full text of the amendment, which now awaits only the signature of the governor, to become a law, is as follows:

"Release from custody, bail, etc.—In case the owner of a motor vehicle shall be taken into custody because of a violation of any provision of this act, he shall be forthwith taken before an accessible captain or a sergeant or acting sergeant of police in any city or village, or any justice of the peace or magistrate, and be entitled to an immediate hearing; and if such hearing cannot then be had be released from custody on giving a bond or undertaking executed by a fidelity or surety company organized under the laws of this State and having a deposit of at least two hundred thousand dollars with the superintendent of insurance of this State, said bond or undertaking to be in an amount not exceeding the maximum fine for the offense with which the owner is charged and to be conditioned for the owner's appearance in answer for such violation at such time and place as shall then be indicated; or on giving his personal undertaking to appear in answer for such violation, at such time and place as shall then be indicated, secured by the deposit of a sum equal to the maximum fine for the offense with which he is charged, or in lieu thereof, by leaving the motor vehicle, being operated by such person with such officer; or in case such officer is not accessible, be forthwith released from custody on giving his name and address to the officer making such arrest, and depositing with such officer a sum equal to the maximum fine for the offense for which such arrest is made, or in lieu thereof, by leaving the motor vehicle, being operated by such person, with such officer, provided, that in such case the officer making such arrest shall give a receipt in writing for such sum or vehicle and notify such person to appear before the most accessible magistrate, naming him, on that or the following day, specifying the place and hour. In case security shall be deposited, as in this subdivision provided, it shall be returned to the person depositing, forthwith on such person giving bond or undertaking of a fidelity or surety company, as in this section provided, or on such person being admitted to bail as provided in section five hundred and fifty-four of the code of crim-

inal procedure, and the return of any receipt or other voucher given at the time of such deposit. In case such undertaking of a fidelity or surety company be not given, or such personal undertaking with security or such deposit shall not be made by an owner so taken into custody, the provisions of section five hundred and fifty-four of the code of criminal procedure, shall apply."

How to Stow Tools Conveniently.

One great difficulty in connection with the roadside repairing of the average touring car, up to the present time, has been that the tools which were wanted were always found to be at the bottom of the tool-box, or hamper, and that on this account, it was frequently necessary to dump out something like twenty pounds of accessories and spare parts in order to come at just the wrench which was needed to get at



some part. With the coming into vogue of the side entrance body with its liberal running board surface, however, better accommodation for the kit has been provided, and as a result of this, in turn, better provision for taking care of the tools is being made now than formerly was done.

Yet the provision of a simple chest, no matter how roomy it may be, is not all that is needed, nor is the use of drawers to be sanctioned, since they must be pulled entirely out of their runways in order to get access to the rear part. Instead, it is better to make the case entirely open on two sides, the compartments taking the form of trays which are linked together in the manner shown in the accompanying illustration, so that they all may be drawn out by simply pulling forward the topmost one. By this means they are made entirely self-supporting in any position, and are all open for inspection simultaneously. The arrangement has been adopted this year by a foreign maker with good results, and seems worthy of consideration from the fact that the greatest amount of accessibility is provided for without the use of expensive parts or complicated mechanism.

"The A. B. C. of Electricity" will aid you in understanding many things about motors that may now seem hard of understanding. Price, 50c. The Motor World Publishing Co., 154 Nassau Street, New York City. ***

TO LIVE IN A MOTOR CAR

How George Washington and Family will Travel from Chicago to Portland, Me.

Wealth called the automobile house into being some time ago and even in its incipient stages it was lacking in none of the comforts and conveniences that genius could suggest or unlimited means command, but it has remained for a Yankee to bring forth the automobile "house boat," for it bears a closer resemblance to one of those economic, water borne residences than anything else. Its sponsor bears the historic cognomen of George Washington and claims Portland, Maine, as his birthplace. At present he is a resident of the Windy City and the automobile house is to form the means of transporting himself and his family from Chicago to his native town. The cost of the trip is to be raised from revenue derived from ornamenting the sides of the house with advertising.

This novel vehicle measures 27 feet over all, is 6 feet wide and 10 feet high, with 7 to 8 feet of "headroom" in all its "apartments." Though no information is forthcoming on the point, presumably a commercial chassis with substantial running gear and solid tires forms the foundation of this traveling menage. The house is built directly upon this and is a cross between what its name suggests and a trolley car body. There are five windows on each side and a roof ventilator, while what appears to be an end vestibule forward is fitted with windows all the way round. It is surmounted by a headlight at each corner of the roof which accentuates its resemblance to a trolley car.

This vestibule-like compartment forms the living room and here is centered the motor control. The structure is built of oak sheathed with light sheet iron, and the remainder of it is divided into a kitchen and dining room. They are arranged much after the order of a Pullman buffet car and occupy two-fifths of the entire available space. On the roof is placed a tank to provide the kitchen and lavatory water supply. The cooking will be done on a gasoline stove. The entire house is electrically lighted and will also have all the other "comforts of home."

Motor Car for Railway Inspection.

And now comes the motor car as a means of inspecting electric railways. Adams D. Claflin, of Newton, Mass., has just ordered a Thomas Flyer from C. S. Kershaw, the Boston agent, intending it for use in overlooking the various interurban railway systems of which he is the head. In this work the motor vehicle is at a great advantage over the private trolley car, in that it is independent of schedules, not dependent on power stations, and may be diverted from the main line as much as may be desired, in order to inspect new territory.

ABOUT THE DIFFERENTIAL

How it Mystifies the Novice—What it does with Apparent Inconsistencies.

Probably the most abstruse piece of mechanism on a car for the novice is the differential. There is no great difficulty in understanding its purpose and the necessity for its presence. Without it the car would be compelled to execute a snap the whip motion around every corner. But it is without doubt one of the last things about the car that the uninitiated come to understand thoroughly, though a knowledge of the principle on which it works will render it clear. It is evident that when running straight ahead both of the driving wheels are not only receiving the same amount of power, but on a smooth road are both free to revolve equally. Hence, both turn at the same speed. If all driving were of the straightaway kind and all roads presented as little obstruction to the passage of one wheel as to the other there would be no need of a differential.

If the novice undertakes to fathom the mystery by a few simple experiments on a differential he will doubtless be more puzzled by the time he gets through than when he started. For instance, if both wheels be jacked off the ground, and the countershaft brake on a chain driven car be applied sufficiently to hold the differential case stationary, it will be found that on turning one of the road wheels by hand the other will revolve in the opposite direction. Remove a jack so that one of the wheels rests on the ground and is thereby held in place and it will be found that the other wheel may be turned freely at any speed desired. If it were running, it would be turned under similar conditions, at whatever speed the road compelled it to revolve. If the engine were driving it and the other wheel was locked the speed of the single wheel will be double what it would be under ordinary conditions, that is, driving straight ahead with both wheels turning.

The average novice finds himself hopelessly beyond his depth when he attempts to reconcile these apparent inconsistencies, and it must be admitted that it is puzzling at first sight to try to figure just what combination of gearing will give these results. The chief cause of the deception is to be found in the fact that in one case, the wheel is being turned by hand and in the other that the engine is driving it from a different point. The one thing to be borne in mind is the fact that regardless of what the speed of the driving shaft may be, the speed of the driving wheels must equal it, no matter how it is divided between the two. This is most tersely expressed by the formula of "half the sum of the speeds of the drivers

must equal the speed of the driving shaft," and this states the principle of the differential in a nutshell. That is, if the driving shaft of the car be turning at the rate of 500 revolutions per minute, each of the driving wheels will be turning at the same speed when running straight away. But in turning a corner one wheel—the inner, is retarded—on a very sharp turn this may amount to thirty per cent. or more. Then the inner wheel will only be running at the rate of 350 revolutions per minute while the speed of the outer one will have been increased by just that much so that it will be turning at the rate of 650 revolutions per minute. If the inner wheel were stopped altogether the outer would then turn at the rate of 1,000 revolutions per minute.

In rounding a curve, the inner wheel has a shorter distance to travel than the outer, and so this action is proportionate to the radius of the curve. But in order that the wheels may proportion their speeds to changing conditions it is evident that they must be independent of one another, though both are connected to the source of power—the bevel gear terminating the driving shaft in that type of car or by chain to the countershaft. The axle is, of course, in two pieces, one being fast to one portion of the differential and the second to the other half of it, from which it will be evident that holding one does not prevent the other from rotating, but that when the strain on both parts is equally applied the whole will revolve together.

Where Roads are Mended with Hay.

"They mend roads with hay in Vermont," reports G. H. Berg. "I was there in October and in going to Rouses Point, N. Y., from St. Albans, I came across the muddiest roads I ever encountered. My car was a sight. At times the wheels had disappeared. At the small hotel the farmers crowded around the car gaping in wonder, and I remonstrated with them for their poor roads. One of them said: 'Well, but we only last week filled the holes with four loads of hay.' I think the cattle must have gotten out and chewed it up. To me it was a new way of mending roads."

Why Nappanee is Proud.

Nappanee, Ind., is proud. Proportionately speaking, it has, with 2,300 inhabitants, more automobiles than any other town of its size in the United States. With its present array and those that have been ordered, the town has more than one car for every hundred inhabitants, and they are all of the higher grade, too.

The Speed that Counts.

On a long run it is the average speed that counts. Spurts are apt to result in derangements that will reduce the average speed. Thus, in respect to hard and moderate driving, the motor car has some points in common with a horse.

HERE'S A NEW MIXTURE

How a Motorist uses Kerosene and Gasolene Without Modifying his Engine.

It has become a matter of more or less common practice to install a double tank system and carburetter where kerosene is to be employed as a fuel in order to enable the engine to be started on gasolene, this being installed as a standard equipment in the case of some marine engines and it is an expedient, the practicability of which has been amply demonstrated on the car. The gasolene tank is very small by comparison, as this fuel is never used for anything but starting when the gasolene carburetter is put into action. It has been tried with a single carburetter and proved to work equally well, except that the precaution of shutting off the kerosene supply and turning on the gasolene a few moments before stopping the engine is a necessity in order to insure a supply of the more volatile liquid in the carburetter for the next start.

But it has remained for an ingenious motorist to combine the two fuels without any modification of the power plant whatever. Experiments in this direction were tried with a view to reducing the size of the fuel bill and seem to have more than justified the expectations of the investigator. They were undertaken during the summer months, the prevailing temperature at such a time naturally favoring the use of a greater proportion of kerosene. In the district in which the experimenter was compelled to purchase his supplies, gasolene ruled at twenty-six cents a gallon while kerosene was to be had at twelve to fourteen cents a gallon, a mixture of the two thus bringing the average cost of fuel down to the level of gasolene alone when at its cheapest.

"Further than this," says this pioneer in the use of this new mixture, "the calorific value of kerosene is higher than that of gasolene and consequently the power obtained from the compound is greater than that obtained from gasolene alone, provided the mixture of fuel and air is correct. It is only necessary to mix kerosene and gasolene in equal, or other, proportions, in the tank and feed the carburetter with it in the ordinary way. Of course, one can experiment to find what proportions are most suited to the engine in use, and very often a mixture far richer in kerosene can be used than with equal quantities of each. At any rate, there is not the slightest difficulty in any case that I have come across yet in getting an engine to take one-third kerosene, and take nearly every drop of it, starting from the cold as usual, as with neat gasolene.

"With more kerosene the starting difficulty is sometimes, though very rarely, greater, but an objection which is noticeable is that it is difficult to start on the last

pint or two remaining in the tank. When the tank gets as low as this, I refill the tank with the mixture and the trouble is overcome. From time to time the dregs can be run off and used for cleaning purposes. The chief objection I have against using any kerosene compound for any length of time is that, in filling up, some of it spills on the tank, and this does not evaporate, but collects dust, and gives rise to an unpleasant smell. Similarly, it gets on to the hands, gloves, and cushions, and after a time the car reeks of kerosene. The same applies to flooding the carburetter, as the drops which overflow do not evaporate if a rich kerosene mixture is used, and the same objections crop up here.

"With regard to the increase of power, I have found this not to be noticeable in certain engines, though in one case I have in mind the effect was strongly marked. In this case probably the conditions were perfect for the use of kerosene, as the compression was high and the cooling excellent. The carburetters that I have used for this purpose have been chiefly Longuemars, and have not been altered in any way except in two cases in increasing the weight of the float. As kerosene has a specific gravity of .800, naturally the density of the compound is raised considerably, which makes the float more buoyant and causes it to cut off earlier than with gasoline. This means that the fuel lies lower in the jet, and consequently there is greater difficulty at starting, which is overcome by a little flooding, though it can better be obviated by cutting a few thin sheet metal washers of aluminum or tin, and laying one, or more of these on the top of the float if of the Longuemars type, so that the buoyancy is adjusted to what it was with petrol alone. If the carburetter has the float levers on the upper side, the top of the float which carries these, should be packed up a little by means of thin washers for the same result to be obtained."

Pocket Companion for Motorists.

"Instruction book" is the title of a booklet that accompanies every Locomobile to its purchaser or will be sent to every owner on application. It is interestingly written in a manner calculated to enlighten the beginner besides being informative to the old hand, and is divided into nine chapters, chief of which are "How to prepare the car for the road," "Difficulties and how to overcome them," "Adjustments" and "Useful Hints and tips." In addition to this it contains a glossary of Locomobile terms.

Gasolene Propelled Fire-Fighter.

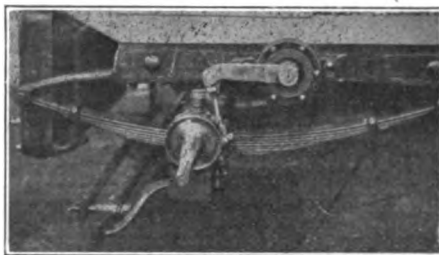
While steam propelled fire engines are not rare, probably the only gasoline driven fire engine in use on this side of the "pond" is owned by the municipality of Beaverton, Ontario. It employs a fifteen horsepower motor and was built by the Waterous Engine Works, of Brantford, Canada, who are now making a specialty of such fire-fighting machines.

The Motor World.

AN AID TO EASY RIDING

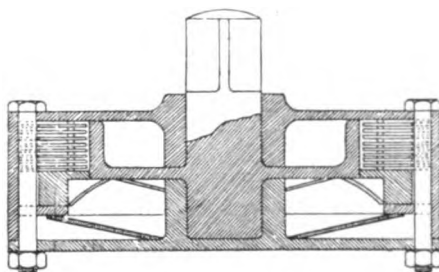
The Distinguishing Features of a New Alleviator of Roughness in Roads.

While France has some of the best roads in the world—probably more of them than any other country of the same size, she can also boast of some of the worst. The French "pave" in plain English means nothing more or less than the long forgotten but never lamented cobble stones, a few ancient specimens being still extant in some cities in the East, such as Brooklyn, in the



unfrequented byways of which may yet be found stretches of the nerve racking surface that only these ill assorted "nigger heads" can produce when years of exposure to weather and traffic have aggravated their original lack of level.

Paris has some of this and practically every French village or city can lay claim to the same distinction so it is not to be wondered at that shock absorbing devices



had their origin in France and that inventors are still devoting their attention to the problem of aiding the springs. The latest to make its appearance is designed by M. Krebs, of the Panhard & Levassor works, and is produced by the latter. Externally it is patterned closely after existing types, but its mechanism differs in that the principle of the multiple disc clutch is taken advantage of to bring about the progressive braking action on the recoil that is the chief object of all such devices. It is composed of a casing and a cylinder, the former of which is made fast to the frame of the chassis and the latter to the crank arm attached to the axle. This cylinder is arranged to turn through a portion of the arc of a circle in response to the pull exerted upon it by the crank arm.

Half of the rings or discs are affixed to the cylinder and the remainder to the casing, the two alternating and the whole being pressed together by a conical washer acting as a spring. At each end of the group of

plates is a ring, one fixed to the case and the other to the cylinder. The surfaces with which these rings come in contact are cut to form a helicoidal curve, so that if one piece is rotated the other is pressed away. Thus in one direction the device does not check the action of the spring while on the other the rebound of the spring is retarded by the friction generated between the plates. The case is filled with lubricating oil to prevent wear. A good idea of the appearance of the device as fitted to a car may be had from the accompanying reproduction from a photograph while its principle and details of construction will be clear from the line sketch.

Dick Heads Philadelphia Club.

The Automobile Club of Philadelphia has elected the following officers: President, William A. Dick; vice-president, Henry Roelofs; treasurer, J. Maxwell Bullock; secretary, H. Bartol Brazier. These chairmen of committees were also elected: Dr. A. D. Whiting, Entertainment; J. Emlen Smith, House; Henry H. Roelofs, Highways; H. Bartol Brazier, Runs and Tours; J. J. Seeds, Legislation, and Isaac Starr, Membership. A new committee, to be known as the Committee on Increased Membership was appointed, Alfred N. Chandler being made chairman.

San Jose Cuts Loose from 'Frisco.

San Joseans who own automobiles have heretofore held membership cards in the San Francisco Automobile Club. Now they think they are sufficiently strong numerically to have a club of their very own. Accordingly, twenty-four enthusiasts have signed the charter roll of the San Jose Automobile Club, the officers of which will be elected at the next meeting.

A. C. A. Soon to be Homeless.

As the lease of its present rooms on Fifth avenue and Fifty-eighth street expires on May 1, the Automobile Club of America will be without a home until its present new building is completed about Dec. 1. It is planned to have temporary quarters during the summer somewhere near its present location.

Lancaster Club Elects Davis.

At the annual meeting of the Lancaster (Pa.) Automobile Club, these officers were elected: President, Dr. S. T. Davis; vice-president, Philip Schaum; secretary, Jacob D. Rider; treasurer, Dr. Parke P. Breneman; directors—the officers, and H. M. Hillegas, Dr. H. B. Roop and Martin Kimports.

Kinks that are Helpful.

"Kinks," one of the most instructive booklets on the subject of ignition troubles ever issued without charge, is being distributed in revised form by the National Carbon Co., Cleveland, Ohio. The booklet contains a lot of those helpful hints that are "worth their weight in gold."

The Week's Patents.

816,006. Tire-Vaive. Charles E. Duryea, Reading, Pa. Filed Apr. 3, 1905. Serial No. 253,679.

Claim.—A valve-body having an air-passage therethrough with its outer end enlarged, forming an interior shoulder, the outer portion of said passage being interiorly threaded, a valve-seat resting on said shoulder and having passage therethrough, a check-holder having exterior threads engaging the interior threads of the body, and having a passage in line with the passage in the inner end of said body, and an enlarged passage outward therefrom, a check having a double conical body with stem depending through the valve-seat into the air-passage in the inner end of the body beyond said shoulder and a stem extended in the opposite direction into the enlarged bore of the check and having a head movable therein and closing the communication between the large and small bore of the check, and a cap detachably secured to the outer end of said check-holder.

816,013. Storm-Shield for Vehicles. Matthew R. Hull, Connersville, Ind., to The Rex Buggy Co., Connersville, Ind., a corporation of Indiana. Filed Sept. 8, 1905. Serial No. 277,603.

Claim.—1. A storm-shield attachment top-vehicles comprising a covered frame extending from the dash to the vehicle-top and approximately the same width as the top, means for securing the lower part of the frame to the vehicle, tightening-rods having turnbuckles in their lengths for securing the top of the frame to the vehicle-top, a flexible apron fastened to the top of the frame and overlapping the valance of the vehicle-top and means for removably securing the apron to the vehicle-top.

816,047. Valve Mechanism for Gas-Engines. Cassius M. Smith and Solon B. Welcome, Los Angeles, Cal., assignors to Western Iron Works, a corporation of California. Filed Jan. 12, 1905. Serial No. 240,673.

Claim.—1. In a gas-engine, an inlet-valve, a bell-crank lever for operating the inlet-valve, an operating-rod pivoted to the bell crank lever and having a hook on its end, a slide-head having an eccentric operated by the engine, an eccentric-rod connecting the slide-head and eccentric, a primary cam carried by the eccentric, a pivoted rock-lever operated by the primary cam for actuating the exhaust-valve, a link connecting the rock-lever and said operating-rod, and means operable when starting the engine for automatically tilting the rock-lever intermittently a less degree than obtained by the primary cam.

816,062. Gas-Engine. Ira S. Barnett, Louisville, Ky. Filed Feb. 6, 1904. Serial No. 192,410.

Claim.—1. A gas-engine having, in combination, a plurality of upright cylinders arranged in alinement above a horizontally-disposed engine-shaft, inlet and exhaust valves in the cylinder-heads, inlet and exhaust pipes disposed at opposite sides of the series of cylinders and communicating respectively with the inlet and exhaust valves, vertically-disposed rods having means for engaging and opening said valves, a shaft geared to the engine-shaft having a series of cams adapted at proper periods to actuate said valve-rods, electrical circuits having separate terminals in the cylinders for igniting the explosive charges, and a make-and-break device mounted on said cam-shaft connected with and adapted

to make and break the several circuits in succession at the proper periods.

816,083. Current-Controller for Igniting Devices for Hydrocarbon Engines. Pay O. Farwell, Dubuque, Iowa, assignor of one-half to The Adams Company, Dubuque, Iowa, a corporation of Iowa. Filed Oct. 21, 1904. Serial No. 229,415.

Claim.—1. An igniting device for hydrocarbon engines, comprising normally separated contacts, a rotary driven member adapted to engage one of said contacts to bring the contacts together, a driving member for said rotatory driven member, the latter being capable of a limited rotatory movement independent of its driver, means connected with the movable contact to accelerate the movement of the rotary driven member after the latter has brought said contacts together, whereby the contacts will be quickly separated, and means for regulating the period of engagement of the contacts to maintain such period substantially constant for various speeds of the engine.

816,089. Speed-Meter. Russell W. Hargrave, Ann Arbor, Mich. Filed May 22, 1905. Serial No. 261,601.

Claim.—1. The combination in a speed-meter of an inclosed case in which are arranged coaxially and to rotate two fans, having vanes with opposite pitches at their inner and outer portions, corresponding portions of the vanes of each fan having the same pitch, substantially as described.

816,109. Explosive-Engine. Thomas J. Lutz, Jr., Mansfield, Ohio, assignor of one-half to A. Kallmerten, Mansfield, Ohio. Filed May 2, 1904. Serial No. 205,874.

Claim.—1. An explosive-engine of the character described which comprises a pair of parallel-arranged working cylinders, an automatically-actuating working-agent feed, and an exhaust opposite each working-agent feed that form a co-operative part of each of the working cylinders, a crank-shaft actuated means for moving the working-cylinder pistons in unison, a pair of valves for each exhaust, a crank-shaft-actuated means for alternately shifting the pairs of valves in unison, one to an open and the other to a closed position, and means for feeding the working agent to the cylinders at premeditated times, as set forth.

816,128. Variable-Speed Driving Mechanism. William L. Schellenbach, Cincinnati, Ohio. Filed Jan. 31, 1903. Serial No. 141,298.

Claim.—1. In a variable-speed mechanism, a driving-shaft adapted to be adjusted endwise and provided with a key; a series of gears loosely mounted on said shaft and adapted to be respectively engaged and driven by said key; a driven shaft provided with a key and adapted to be shifted endwise; and a series of gears on said driven shaft in mesh with the gears on the driving-shaft, and adapted to respectively impart motion to the driven shaft by means of the key carried by the driven shaft.

816,149. Vehicle Wheel. Richard S. Brvant, Columbus, Ohio. Filed Mar. 23, 1905. Serial No. 251,548.

Claim.—1. A wheel comprising opposite sections adapted to be secured together having integral semitubular spokes and rim portions, bosses pressed in one or more of the semitubular spokes, reinforcing means confined within the spokes between the bosses, and inner spoke members disposed within the outer spokes.

816,182. Tire-Armor. Homer E. Prouty,

WANTS AND FOR SALE.

15 cents per line of seven words, cash with order
In capitals. 25 cents per line.

A TEN PASSENGER wagonette; sample car, 1905-1906 model steam; price and description on application. THOMPSON AUTO CO., Olneyville, Sq., Providence, R. I.

WANTED—Foreman experienced in gas engine work to take charge of engine assembling department in large automobile factory. Must be a hustler and come well recommended. Address R, Box 649, Motor World, New York City.

WANTED—Foreman to take charge of repair department in automobile factory. Must have had experience with high grade American and foreign cars and be able to handle men to advantage. No others need apply. Address M, Box 649, Motor World, New York City.

WANTED—Foreman for body and running gear finishing and assembling department in large automobile works. Must have had previous experience in this line. Address C, Box 649, Motor World, New York City.

WANTED—Draftsman. One familiar with automobile work preferred. None but first-class draftsmen need apply. Address T, care of Motor World, New York City.

FOR SALE—Baker Electrics, one each, Run about, Stanhope, Imperial and Surrey with top, all new and at greatly reduced prices. THE LOZIER MOTOR COMPANY, 55th Street and roadway, New York City.

WANTED—Your auto tires; don't throw them away; we re-build and do retreading; guaranteed to last like new; less than one-third the cost of new casings. MEYER RUBBER VULCANIZING WORKS, Anderson, Ind.

FOR SALE—1905 Royal Tourist, royal blue, fully equipped, victoria top, \$2,500; National 24 h. p. driven only 600 miles, \$2,100; National 24 h. p., black, red, running gear, \$1,750; National 24 h. p., \$1,600; 1905 Franklin, tilting front seat touring car, red, fully equipped, tools, side hampers, \$1,000; Franklin runabout, green, red running gear, fully equipped, \$550. Above cars have been thoroughly overhauled and will be repainted to suit purchaser. REYBURN MOTOR CAR CO., 5023-29 Delmar Blvd., St. Louis, Mo.

FOR SALE—Oldsmobile, bargain, with \$50.00 worth of extras, had about one season's service, guaranteed fine condition, and splendid running order, for quick sale \$350.00 cash; demonstrate to satisfaction, best references. WM. H. MASON, Lock Box 69, Mt. Carmel, Ill.

FOR SALE—White Steamers. A few 1903's overhauled and repainted at the factory, and guaranteed in first-class mechanical condition; all equipped with engine cutouts and other late improvements; \$750 f. o. b. Marion, O. C. C. STOLTZ, Marion, O.

\$850 1904 WHITE STEAMER, with new engine; thoroughly overhauled and repainted; equipped with canopy top, side hampers and extra rear seat; engine equipped with cutout; hand by-pass on dash. KEYSTONE AUTOMOBILE CO., 5905-15 Centre Ave., Pittsburgh, Pa.

AUTOMOBILES FOR SALE—Our present stock comprises some of the most desirable propositions in slightly used and second-hand Automobiles it has ever been our privilege to offer, ranging from \$135 upward. Our complete list is free and will save you money. THE STARIN COMPANY, 72-74 MAIN ST., NORTH TONAWANDA, N. Y.

MICHELIN

ON TIRE CONSTRUCTION.

How is a tire made? What is the envelope which holds the cushion of compressed air? How is it fixed on to the wheel of the vehicle?

This is a series of practical questions, the answers to which will be found below.

The materials employed are iron, which is rigid, on which is fitted rubber, which is elastic.

The air-tube is the life and soul of the tire, it is a continuous rubber tube. The sole purpose of the air-tube is to be air-tight. Consequently, it is made of pure rubber, without canvas, which is not air-tight.

But on the other hand, an air-tube made of pure rubber would not be capable of resisting a high pressure, and if it should be inflated to any high degree, it would burst. For this reason, it is placed in a cover made of canvas, canvas alone being sufficiently strong to resist both the pressure from the inside and the outside friction, and at the same time sufficiently pliant to yield without being damaged.

The canvas is protected against all causes of damage and also against the friction of the road by a thick layer of rubber.

Rubber as a matter of fact has more power of resistance to the wear and tear of the road and to bad weather than any other substance. It is, however, very desirable that another substance should be found and many researches have been made for one, for as the cover must be made of rubber of only the best quality, it follows, naturally, that it is therefore very expensive.

This outside layer of rubber is made with a crescent-shaped section, which is independent of the cover itself, except in our special tires without tread, so that when one or the other is worn out, there is only one to be replaced, which is a saving of expense. This crescent is called the protecting tread.

Thus the air-tube is quite distinct from the cover, and it will be readily understood what an advantage this is. If the tire is punctured in one or several places, nothing is easier than to repair it in a way which shall be permanent. In order to do this, it is only necessary to remove one or both of the edges of the cover and take out the air-tube and then to place a patch of pure rubber on the air-tube. If the cover is very much damaged, which does not happen often, a piece of canvas lined with rubber is placed inside. The air-tube and cover are then replaced on the wheel and the repair will be found to be perfectly air-tight; on one side, the patch will have no strain to bear, as it will be pressed against the cover (some air-tubes have been found to be perfectly air-tight with as many as twenty patches on them) and on the other side, the canvas, which constitutes the repair, is also pressed against the cover and will resist perfectly.

Both edges of the cover form beads which are inserted in the corresponding clinches of the rim.

Further, these beads are kept in place and tightened by security bolts, placed at regular intervals. The edges are thus prevented from moving and from coming out of the rim.

This way of attaching the tire has one great advantage.

Many experiments have been made to see whether it was possible to keep the tires on the rims simply by means of the pressure of the air, but it was found not to be feasible. If, from some cause or other, the pressure should decrease, the cover may slip off and get caught between the spokes, and a serious accident result.

Further, the wheel may side-slip in a track or in making a turn, and then if the strain is greater than the pressure of air, the tire would burst.

This is why we have decided that it was advisable to use these security bolts, by means of which the covers cannot come off the rims unless it is desired to remove them.

The preceeding instructions for mounting, detaching and repairing tires, and the extracts from "Michelin's Mondays," which follow show how the different parts of the tire are used, and if the advice we give therein is followed, our readers will be able to make the most of their tires.

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Genoa, Ill. Filed June 26, 1905. Serial No. 266,990.

Claim.—1. A wheel, including a rubber tire provided with interlocking elements arranged upon the periphery of the tire, each element having its ends secured to the spokes of the wheel.

816,189. Vehicle Wheel. John C. Schleicher, Mount Vernon, N. Y. Filed Feb. 23, 1905. Serial No. 246,824.

Claim.—1. A vehicle-wheel comprising two side wheels, a wheel located between said side wheels and having a band secured to its under face provided with projections, spring-plates carried on the spokes of the side wheels, seats on said plates engaged by the projections of the band, an eccentrically mounted ratchet-wheel, a pawl engaging it, a spring-band adapted to be expanded and contracted by said ratchet-wheel and springs supported between said spring-band and spring-plates, substantially as described.

816,215. Tandem Gas-Engine. Leopold F. Burger, Anderson, Ind., assignor to Woolley Foundry & Machine Works, Anderson, Ind. Filed Feb. 2, 1905. Serial No. 243,826.

Claim.—1. In a gas engine, a plurality of cylinders having explosion-chambers at the same end, simultaneously-operating pistons therein, a compression-chamber disposed intermediate of said cylinders and in communication with the piston in one thereof at its end opposite the explosion-chamber, and means to convey the compressed fluid from said chamber to either of the cylinders.

816,225. Tire. Charles W. Faitoute,

Summit, N. J. Filed Dec. 27, 1904. Serial No. 238,444.

Claim.—1. A cushion-tire comprising an outer casing, an interior band filling the part of said casing adapted to lie against the wheel, and resilient superposed members between said casing and the band, said members being transversely concavo-convex.

816,250. Motor Vehicle. Charles M. J. Petiet, Villeneuve-la-Garanne, France, assignor to Societe Anonyme des Automobiles Aries, Villeneuve-la-Garanne, France. Filed Jan. 10, 1905. Serial No. 240,490.

Claim.—The combination of an axle made in a single piece, a differential gearing fixed on said axle, transmission-shafts connected to the driving-pinions of the differential by means of olive-shaped squared heads engaging in squared holes in the hubs of said pinions, the hubs of the wheels being journaled in the ends of the axles, rings arranged non-rotatively on the ends of the axles, retaining said hubs in place, a box forming a prolongation of the hub of each wheel and provided with gaps, teeth on the ends of the transmission-shafts engaging in said gaps to transmit the rotation of the shaft to the wheel, a screw-cap closing the end of each of said boxes, and a spring interposed between the end of each shaft and said gap to form a resilient bearing or abutment.

816,267. Carburetting Apparatus. Matthew Steel, Gosforth, England. Filed Feb. 3, 1905. Serial No. 244,033.

Claim.—1. The improved carbureting apparatus comprising the combination of a vessel adapted to hold liquid hydrocarbon, concentric tubes through which the air to

be carbureted passes to the hydrocarbon, an inlet-pipe depending between said concentric tubes, a float, a casing around said float forming a chamber, said concentric tubes forming a liquid seal and telescopic connection between the depending inlet-pipe and said chamber, said casing being provided with holes at different levels all below the normal level of the hydrocarbon, the total area of said holes increasing at each successive lower level.

816,282. Motor-Vehicle Running-Gear. Ralph B. Vaughn, Kingston, Pa. Filed Oct. 2, 1905. Serial No. 280,991.

Claim.—1. In a vehicle, the combination of a frame, an axle, a radius-bar connecting the frame and axle, a hanger fastened to the frame and loosely inclosing the axle, the hanger curving in an arc concentric to the center of movement of the radius-bar, a driving-gear for the axle, said gear including elements of centers of which are respectively coincident to the ends of the radius-bar, a spring fastened to the frame, a yoke connected to the spring, a box in which the axle is mounted, the box sliding in the yoke, and cushions held in the yoke above and below the box.

816,369. Speed-Changing Device. Otto F. Presson, Lynn, Mass., assignor to General Electric Company, a corporation of New York. Filed July 20, 1904. Serial No. 217,311.

Claim.—1. In a speed-changing device, the combination with two conoidal friction-gears independently rotatable on a common axis with their bases adjacent, of a pair of connected pinions engaging respectively with said gears, and means for moving said pair of pinions lengthwise of said gears.

THE LARGEST AUTOMOBILE SUPPLY HOUSE IN AMERICA.

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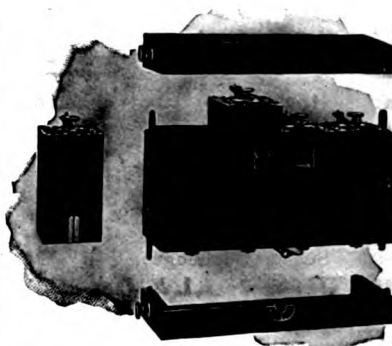
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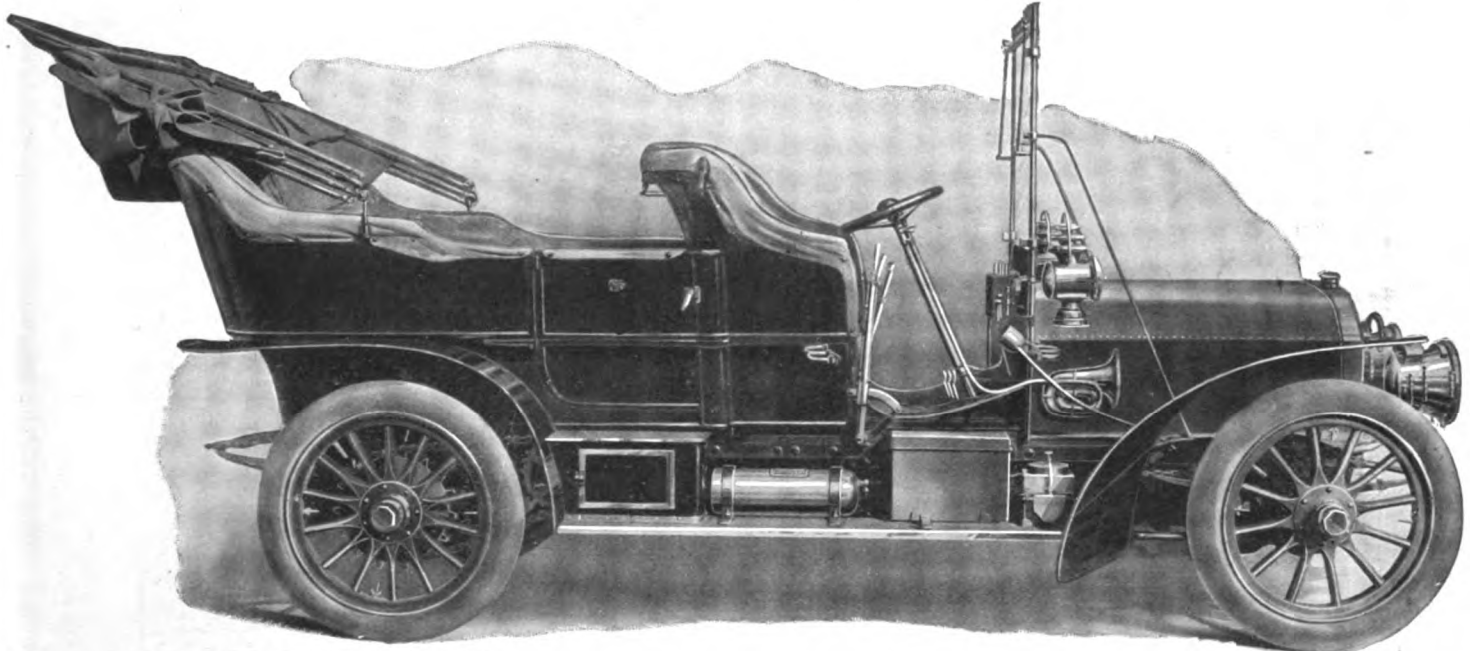
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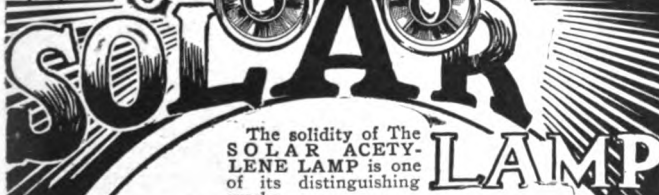
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Has a water jacket and other individual ideas in construction that appeal to any man who appreciates practical mechanics.

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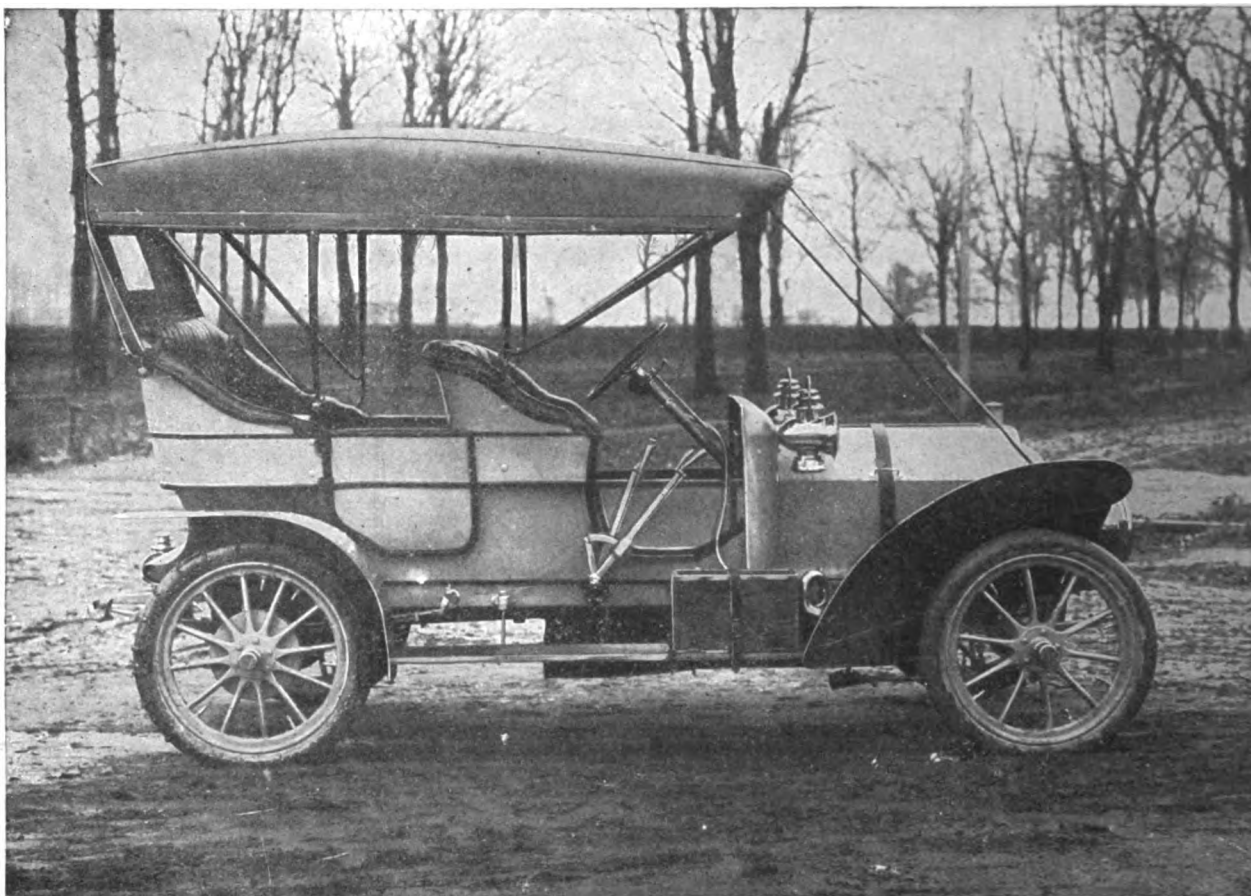
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100 Hour Non-Stop Run.

From "Motor Age," April 5th.

"A successful non-stop run has just been completed in Chicago. A model "S" 26-28 horsepower Oldsmobile, sent out by the Githens Brothers' Automobile Co., under the direction of Paul Henderson, put up a new mark by going 100 hours instead of 1,000 miles. The engine, it is said, was not stopped once, although Henderson was arrested once because of a sign carried on the boulevards announcing the mission of the car. In the 100 hours the Oldsmobile traveled 1,115 miles, using 85 gallons of gasoline and 3½ gallons of oil, giving a mileage between 11 and 12 miles per gallon of gasoline."

The Oldsmobile Palace Touring Car, Model "S," sells for \$2250 fully equipped.



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Saves cost per ton mile.

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How to Know When Your Tire Gets Flat

HOW much money would it save you in a season if a bell rang as soon as one of your tires began to get flat?

Supposing this were possible.

For you know the ordinary tire begins to rim-cut as soon as the air begins to leak out. And generally you don't know a thing about it until you are riding on the rim. Then it's too late, for the damage is done.

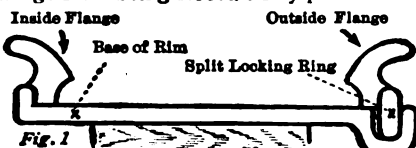
Nothing remains for you to do but say things unfit for publication and make the best of it. Isn't that gospel truth?

* * * * *

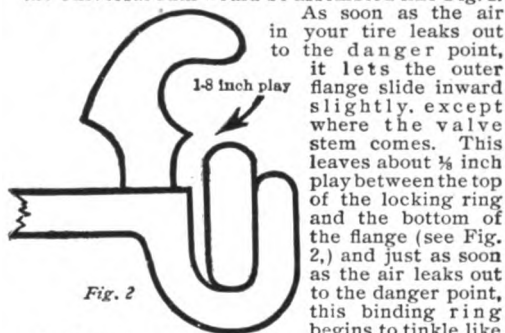
Now there's a sure way to know when your tire is leaking—without watching it—without worrying about it—without getting out of the car.

If you have the Goodyear Universal Rim on your car, it will sound an alarm before the air in your tire is exhausted to a rim-cutting point. And this is the way it does it:

The flanges of the Goodyear Universal Rim (which hold the tire in place) are circles of steel which slide on and off the base of the rim, as a ring slides on and off your finger. When both flanges are in place, a "key" ring or locking ring, keeps the outer flange from being forced off by pressure of



the tire. When used for Goodyear Universal (the tire that wipes out 90 per cent of all tire troubles) the Universal Rim would be assembled like Fig. 1.



As soon as the air in your tire leaks out to the danger point, it lets the outer flange slide inward slightly, except where the valve stem comes. This leaves about 1/8 inch play between the top of the locking ring and the bottom of the flange (see Fig. 2,) and just as soon as the air leaks out to the danger point, this binding ring begins to tinkle like

a bell, saying to you plainly and unmistakably: "Shut Down! Stop!! Your Tire is beginning to rim-cut!!!" If you heed this call, you have saved the cost of a new tire.

* * * * *

This is only one of the reasons why the Goodyear Universal Rim will preserve any tire to a half old age.

There are others of even greater importance.

If you get a puncture, you can remove your tire to make the repair in 30 seconds—and it requires no tools but the hands. It's as easy to remove and put back a tire on a Goodyear Universal Rim as it is to put on and take off your cuffs, and it takes but little more time.

This is all there is to removing a tire from the Universal Rim. See how easy it is.

Unscrew the Thumb Nut which holds the valve stem tight against the rim. Push the



valve stem up into the tire (this lifts the steel plate which holds the flanges in position.)

Spread and remove the locking ring with your fingers. It is split for this purpose at a point alongside the valve stem. See Fig. 3. Pull off the outer flange ring.

Slide off the whole tire, or simply pull out the inner tube as you prefer. It has taken less than half a minute. And after the repair is made, another 30 seconds and you are ready to pump up.

* * * * *

The Goodyear Universal Rim will take any Goodyear Tire (Detachable or Clincher) or any standard clincher tire on the market. If your car has Goodyear Universal Rims, you can have a tire of a different make on each wheel if you wish. And it will take less than a minute per wheel to change from one make of tire to another, without the use of a single tool.

* * * * *

Get our "Good News Book" and see the many other convenient, money saving and time saving features of the Goodyear Universal Rim when used in connection with the Goodyear Detachable Auto Tire. This book will be found intensely interesting to the Manufacturer, Dealer or Rider, because it shows a sure way of relief from all tire troubles.

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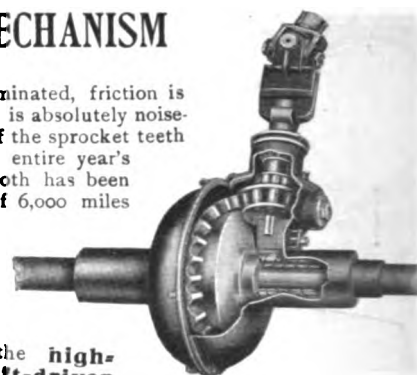
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ALL the bad features of both beveled gears and side chains and sprockets are overcome in the Haynes construction. The axle consists of a 1 1/2 inch shaft of nickel steel of 100,000 lbs. tensile strength and 70,000 lbs. elastic limit. One wheel is keyed to this nickel steel shaft which also bears one member of the differential; over the opposite end is slipped a close fitting steel sleeve extending to the center, on its outer end is keyed the other wheel, while the other member of the differential is attached to its inner end. Secured to the differential is a large beveled sprocket gear (the driving gear of the car) which is driven by a pinion keyed to the rear universal joint, on which rollers take the place of teeth. This pinion has a double roller bearing on one end, and a long, plain bearing on the other end. The entire driving mechanism and axle are enclosed in a steel housing and strengthened by a truss rod extending from end to end. The axle runs on four sets of flexible roller bearings.

Thrust is entirely eliminated, friction is greatly reduced, and it is absolutely noiseless. The thickness of the sprocket teeth is so great that in an entire year's output not a single tooth has been broken. A journey of 6,000 miles producing no perceptible wear, the teeth and rollers being only partially polished from the driving friction.

The Haynes is the **highest powered shaft-driven car built.**

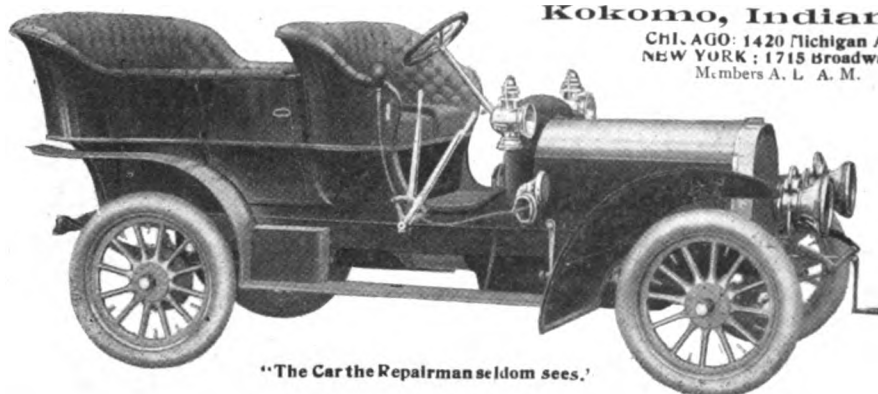
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Model "R" Four-Cylinder Touring Car.

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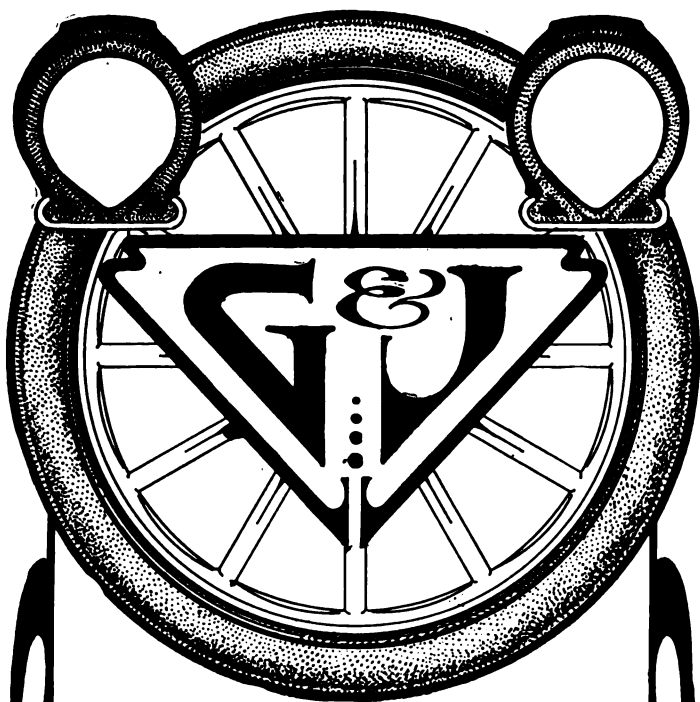
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Cylinders cast in pairs 4 1/4 x 5-in., 28 to 30 H. P. Transmission, cooling system, lubrication, master clutch, shaft drive, universal joints, sprocket, roller pinion and roller-bearings and body same as on Model "R." 97-inch wheel base. 4-inch tires. Tonneau seating three persons. Four to 40 miles an hour on high speed. Price, \$2,250 f. o. b. Kokomo. Full equipment.

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Cars for the Season
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**ONE CURE
WRAPPED TIRES,
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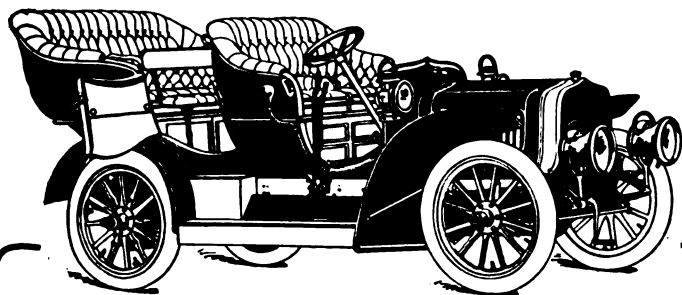
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Pope-Toledo

**is the fastest, most Powerful Stock
Touring Car in America.**

35-40 H. P.

Full Equipment, Price, \$3500.

Please note carefully that we say one mile or a thousand miles. Moreover, the type XII, 35-40 H. P. Pope-Toledo, will run more miles at less cost for tires, fuel and repairs and with less adjusting than any high powered touring car in the world. Transmission is made of the **New Chrome-Nickel Steel**, having a tensile strength of 225,000 pounds, and is, without question, the strongest, most silent and smoothest running Transmission ever placed in an automobile. **This year we have adopted the "I" Beam form of axles, drop forged in our own plant from steel having a tensile strength of 110,000 pounds.** Both foot and emergency brakes act on the rear hub bands, thus relieving all brake strain and wear on the transmission.

Engine throttles down to a point making it possible to **drive behind a team walking, or gives the maximum efficiency of the engine ALL ON THE HIGH GEAR.**

Be Sure the Name "POPE" is on Your Automobile.

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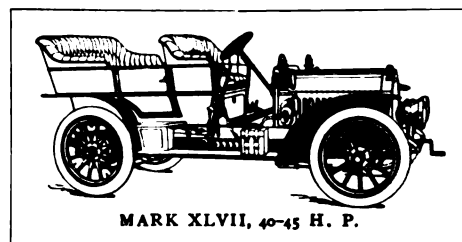
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Meet every requirement of pleasure driving, general use and business and embody all of the best things known in motor car building. Columbia Chrome-nickel Steel with an elastic limit of 135,000 pounds and tensile strength of 225,000 pounds is used for all vital parts of our gasoline cars.



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- MARK LX, Electric Runabout** **\$900**
- MARK LXI, Electric Victoria-Phaeton, the Most Luxurious Light Electric Carriage ever Produced,** **\$1,350**

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Ranging from 1,000-lbs. to 10,000 Load Capacity.**

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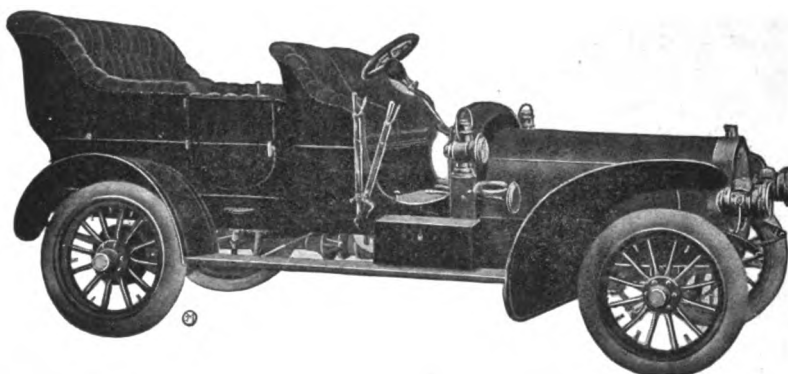
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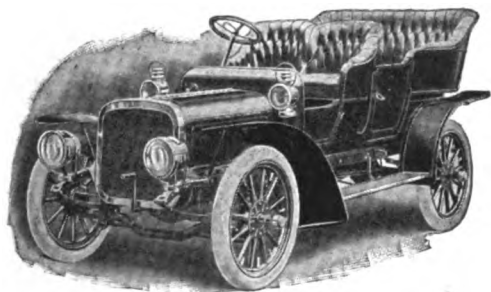


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6 Cylinder, 50-60 H. P., \$4000

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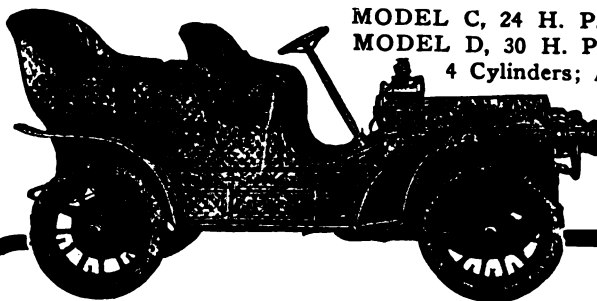
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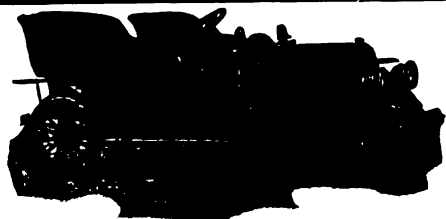
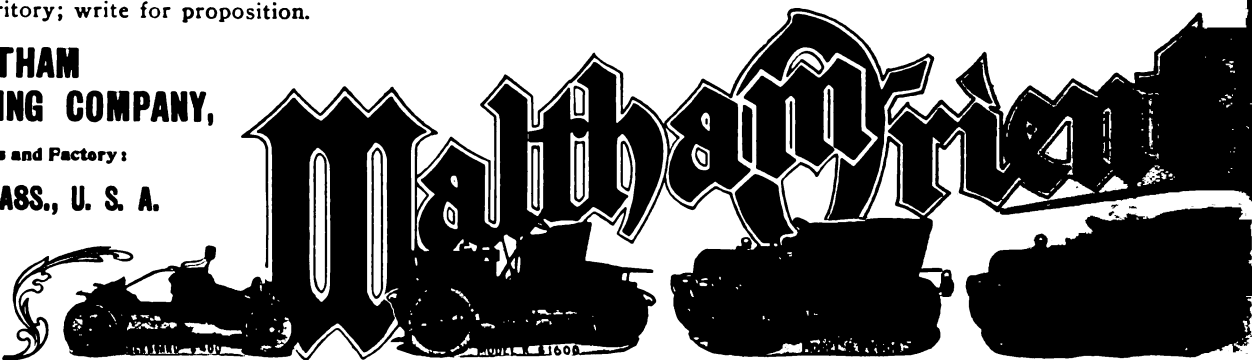
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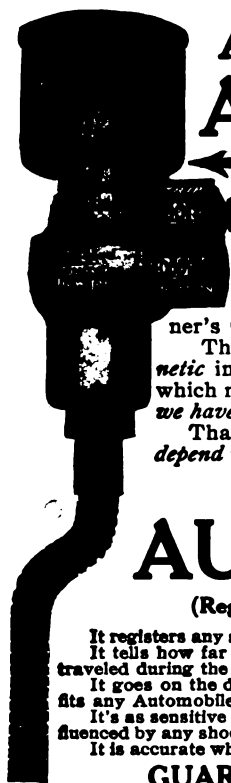
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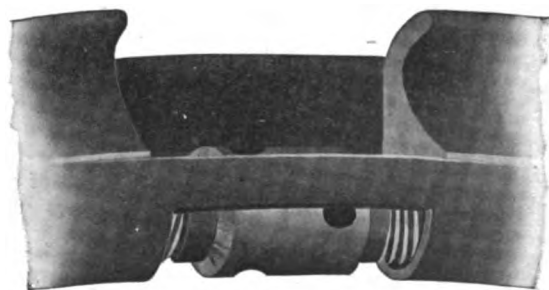
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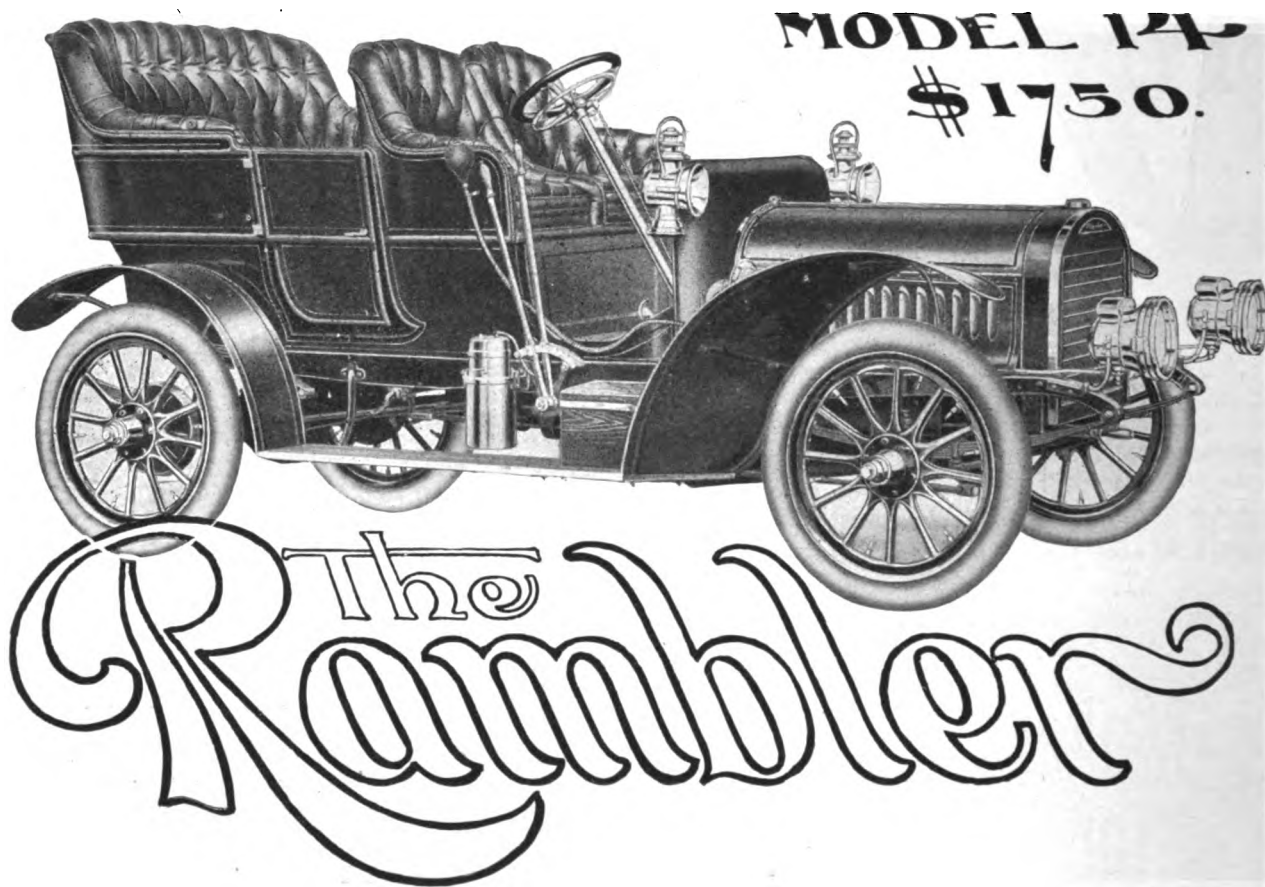
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THE MOTOR WORLD.

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE
AND KINDRED INTERESTS

Volume XII.

New York, U. S. A., Thursday, April 12, 1906.

No. 11

CARTER BOBS UP AGAIN

He Seeks to Locate his "World's Biggest Factory" in Wide-Awake Detroit.

As long ago as August 17, 1905, the Motor World predicted that William H. Carter, of the then and the yet unidentified million dollar American Mfg. Co., Inc., of Washington, D. C., probably would, after he had made the circuit of western towns endeavoring to induce Boards of Trade, Business Mens' Associations and the like to subscribe capital sufficient for him to "plant" his biggest automobile factory in the world," gradually work his way eastward. The prediction has come true, although during the eight months intervening he has not journeyed many miles toward the rising sun.

Carter was heard of last week in Detroit, Mich., the heart of the automobile industry in the United States, and notwithstanding he is in new dress, so to speak, and has dropped the initial "W." from his name, he and the "William H.," formerly of Washington, undoubtedly are one and the same. Carter's new role is "President H. Carter, of the Carter Motor Car Corporation, Inc., of Washington, D. C.," and he is in Detroit for a few days to complete arrangements for the manufacture of the "Carter Motor Car" by the "Carter International Car Co.," of which he is also general manager, it is stated. There already is being made in Detroit the Carter car, but its makers are the Motor Car Co.

Runabouts, tonneaus, special automobile fire engines, patrols, ambulances, delivery wagons and trucks figure largely in the plans of the new company which is to operate in Detroit. This extensive list comprises the same vehicles that were to be manufactured in a score of other towns, with the exception of the ambulance, which is a newcomer.

Evidently the million-dollar American Mfg. Co., of Washington, D. C., has gone out of existence and will remain unidentified for the Detroit paper states that "Mr. Carter has disposed of his United States patent rights to the Carter Motor Car Corporation, Inc." Perhaps the peregrinating promoter

intends to take a trip abroad for the Detroit information adds that Carter will "in a short time give his undivided attention to the export business to all foreign countries."

Milwaukee, Wis., Racine, Wis., Nashville, Tenn., Omaha, Neb., Appleton, Wis., Atlanta, Ga., Decatur, Ill., are a few of the places in which Carter has attempted to establish a mammoth automobile factory.

To Make Parts in Providence.

The Rhode Island Machine Co., which recently was incorporated at Providence, to manufacture automobiles and automobile machinery, has organized with the following officers: President, John W. Bishop, treasurer, Clayton Harris; assistant treasurer, Edward G. Pinkham; manager, Walter M. Jordan, and secretary, Robert M. McLeod. The company has taken the upper floor of the building at Nos. 428 to 432 Kingsley avenue. For the present the company will confine its attention to the making of gears, engines and small parts. Walter M. Jordan, who, as manager, will have the mechanical supervision of the plant, has been in the gear cutting department of the Brown and Sharp Manufacturing Company for several years.

Bliss Shifts Selling Agency.

The E. W. Bliss Co., of Brooklyn, N. Y., whose fame as builders of fine machinery is world-wide, and whose advent into the automobile business has been looked forward to with much interest, has made a shift in the control of its selling arrangement, which have passed from the hands of Douglas Andrews & Co., 1683 Broadway, into those of F. C. Armstrong, formerly New York manager of the Electric Vehicle Company. Mr. Armstrong has opened up a new salesroom at 1964 Broadway, New York City.

Canadian Cars in Prospect.

Detroit capital is said to be interested in the Chatham Motor Car Co., which filed articles of incorporation last week. The concern will, it is stated, manufacture automobiles at Chatham, Ontario. J. M. Gardiner, of Chatham, and William Miller, of Petrolea, are named in the papers.

LLOYD MAKES ADMISSIONS

Tells Some Eye-Opening Facts About the Vehicle Equipment Co. and its Successor.

Before the examination of the defunct Vehicle Equipment Co., held before U. S. Commissioner R. P. Morle, in Brooklyn, on Tuesday last, had proceeded very far it became apparent that for some time past the concern's affairs had been in bad shape and that for a number of weeks prior to the presentation of the petition against it things were so involved that the company was hopelessly insolvent. As fast as vehicles could be finished and delivered, the accounts were assigned in order to raise sufficient money to cover the payroll. Two of these account to the extent of about \$7,000 were assigned to Riggs, Baldwin & Pierce, a firm of lawyers representing the Vehicle Equipment Co., as counsel. Accounts amounting to \$23,500 were in all assigned, of which about \$11,000 went to the General Electric Co., just six weeks prior to the bankruptcy, the money being employed for running expenses. But interest centered chiefly in the fact that Charles O. Dewey, who was appointed receiver by Judge Thomas at the instance of Kenneson, Emley & Rubino, attorneys for the petitioning creditors, had not qualified and assumed his duties as receiver, a fact that made it possible for the newly organized General Vehicle Company to step in and assume the direction of the defunct concern's affairs.

George Comstock, of Olney & Comstock, representing Rainier Company, as creditors, took in hand Robert McK. Lloyd, formerly an officer of the old company, and since last Friday the president of the new General Vehicle Co., and in the course of a lengthy examination brought out the fact that during the past year the defunct concern had borrowed \$250,000, had built and disposed of \$700,000 worth of vehicles, despite which and the fact that it maintained a "cost department" to keep track of the manufacturing costs and figure net and gross profits, "all it has to show is \$89 in the bank and this statement, besides which it owes a large amount for material.

Delving into the question of assets, Mr.

Comstock undertook the examination of a Mr. Osburg, the auditor of the company, and in connection with the books and an inventory made on December 31st, 1905, brought out the fact that the company's assets on that date, excluding the realty, amounted to close to \$250,000. Of this the item of materials alone was \$164,000, represented, as testified to by Mr. Lloyd, of finished and partly finished cars, finished parts and some raw material, of which about \$30,000 represented finished cars.

Resuming the direct examination R. McK. Lloyd, the latter stated that he had organized the General Vehicle Co., and that he was now its president—since last Friday, prior to that time, a Mr. Paxton had filled the office. That Mr. Clark, who it appeared, was a law clerk in the office of Riggs, Baldwin & Pierce, was vice-president, and Mr. Phillips, the former assistant manager of the old company, was treasurer. Also that none of the capital stock of the new concern had been subscribed for and that its only assets consisted of \$10,000 which he had personally put in. Asked if it was his own personal funds, he stated that it was a loan from a personal friend for the purpose and later admitted that the personal friend was the Mr. Paxton, who first held the office of president. Further that he (Lloyd) had put the money into the new company without any security; was not receiving any salary or remuneration of any kind, and that his salary for the month of February was the last compensation he had received, and that his only purpose in putting up the money and organizing the leasing company was to keep the plant running for a short time longer so that if possible, the company could be sold as a going concern for the benefit of the creditors. The materials or half-finished vehicles were worth very little compared to what could be realized by finishing them. Moreover, that if it became known that the company was about to go out of business, the orders for 50 vehicles now on the books would be immediately cancelled.

Mr. Lloyd also testified that he had approached H. H. Havemeyer and the senior Havemeyer, William F., as well as a Mr. Wilcox, with this proposition, but they had refused to have anything to do with it, and that it was entirely an arrangement of his own creation. It was neither at the request of Mr. Havemeyer or any of the stockholders or bond holders that he had undertaken it. He was a large stockholder himself, but not a bondholder and had undertaken the scheme entirely upon his own responsibility, acting with the advice of Mr. Baldwin, of counsel to the old company. The latter questions were put to the witness by Abraham Elkus, representing the creditors generally, when the witness was again taken in hand by Mr. Comstock with the question "What is the General Vehicle Co. actually doing?" To which Mr. Lloyd replied that during the two weeks that had elapsed since taking over the old concern, \$24,000 worth of vehicles had been finished

and sold at an expenditure of \$10,000, and that if the company were permitted to continue a month or more longer probably as much as \$150,000 worth of work could be finished with a net profit of at least \$50,000. But that fully three months would be required to complete all the vehicles and that the payroll of \$2,700 a week represented the smallest expenditure for labor on which the plant could continue. Mr. Havemeyer is the principal creditor, to whom is owing something like 60 per cent. of the total indebtedness, but as to Mr. Havemeyer's whereabouts, when he left the city, where he has gone or when he would return, the witness knew nothing.

He was then taken in hand by Abraham Elkus, who brought out the fact that Mr. Lloyd had conferred with Mr. Havemeyer and the old company's counsel with regard to the organization of the new leasing company fully 30 days before the date of the bankruptcy and while the concern was to all intents and purposes insolvent. He also tried to establish the fact that either Mr. Havemeyer or Mr. Lloyd had requested some of the creditors to petition the company into bankruptcy; that the claim of one of the petitioners, the Smith & Mabley Co., was only \$5.10, but the witness disclaimed any knowledge on the subject. Asked to explain a payment of \$1,000 to S. M. Hammel, while the company was insolvent, and also to make clear Mr. Hammel's connection with the General Electric Co., the witness stated that the payment was for money advanced to cover the payroll, and that Mr. Hammel was a director of both the Vehicle Equipment Co. and the Schnectady Trust Co., but did not know of his connection with the electric company. After going into detail as to the present status of the plant, the working force, running expenses, including salaries, with a view to making clear the prospects of continuing with advantage to the creditors, Mr. Comstock remarked that the prospect looked blacker with every question asked. A review of the schedule revealed nothing more substantial than the \$89 in the bank, excluding the realty and the latter is almost totally eaten up by mortgages.

Some of the other items of the schedule were: bonds, \$139,000, admittedly worth no more than the paper they are printed on; notes receivable, \$19,000, "some good and some bad, and probably worth \$5,000 to \$6,000," admitted Mr. Lloyd. Stock in the Merchants' Garage Co., New York City, \$10,000, "may be worth \$1,000," inventory of April 1, 1905, \$285,000, "actual value probably \$20,000." Accounts receivable, \$58,000, "minus advances to salesmen and other items probably worth \$25,000 to \$30,000." Patents, contracts and franchises, "say \$500" were some of the answers of the witness with regard to the prospect of recovering anything on the assets shown.

And in this connection, the examination of the auditor, Mr. Osburg, which followed, brought out in a striking manner the loose methods of the company in doing business.

The contracts under which vehicles were built called for payment on delivery, but according to the witness, buyers paid when they got ready, some in two weeks, some in a month or any time up to six months, the average time of payment being about three months from the time the car is delivered. Moreover, from 5 to 10 per cent. of the vehicles were returned and no payment made on them, the contracts under which they were sold permitting this to be done.

The Week's Incorporations.

Saginaw, Mich.—Morris Automobile Co., increases capital stock from \$12,000 to \$25,000.

Denver, Col.—Smith Automobile Co., under Colorado laws, with \$10,000 capital; to deal in automobiles. Corporators—M. C. Smith, F. C. Smith and R. W. Smith, all of Denver.

New York City, N. Y.—Metropolitan Garage Co., under New York laws, with \$100,000 capital. Corporators—H. R. Worthington, Raymond Carrington and P. R. Towne, all of New York City.

Norwalk, Conn.—Wehrle Automobile Co., under Connecticut laws, with \$5,000 capital. Corporators—R. S. Barclay and Mary A. Barclay, Royaton, Norwalk; and R. L. Wehrle, South Norwalk.

Hartford, Conn.—Hartford Automobile Parts Co., under Connecticut laws, with \$10,000 capital. Corporators—Fred H. Bogart, of New Britain, and Edward A. Bardol and Andrew Broughel, of Hartford.

Indianapolis, Ind.—Miller-Hopkins Mfg. Co., under Indiana laws, with \$15,000 capital; to manufacture and sell motor vehicle accessories. Corporators—William T. Miller, Thomas H. New and Frank Nuckols.

Augusta, Me.—Automobile Owners' Defense Co., under Maine laws, with \$100,000 capital; to enforce civil rights. Officers and corporators—President, G. R. Hadlock; treasurer, W. S. Lee, both of Augusta.

New York City, N. Y.—Frayer-Miller Motor Car Co., under New York laws, with \$1,000 capital; to deal in automobiles. Corporators—H. W. Johns, Bronxville, N. Y.; F. E. Muscovics and H. H. Knipper, New York City.

Harrisburg, Pa.—Keystone Motor Co., under Pennsylvania laws, with \$15,000 capital; to deal in automobiles. Corporators—H. C. Dodge, J. A. Kline, C. C. Conklin, J. E. Sellers, of Harrisburg, and E. G. Irvin, of Steelton.

Saratoga Springs, N. Y.—Heath Dry Gas Company, under New York laws, with \$100,000 capital; to manufacture automobiles. Corporators—E. L. Heath and S. C. Brown, of Saratoga Springs, and F. A. Heath, of Jersey City, N. J.

Camden, N. J.—Yacht Gas Engine and Launch Co., under New Jersey laws, with \$100,000 capital; to manufacture automobiles and launches. Corporators—F. A. Von Bayneburgh, H. H. Dantzebecker and G. H. B. Martin, all of Camden.

PLANS FOR OPEN AIR SHOW

Big Tent Space and Low Prices—Some Features of Contests to be Held.

Plans for the first open air automobile show and carnival, which will be held at the Empire City track, New York City, May 24, 25 and 26, by the New York Automobile Trade Association, are progressing. As the space under the grand stand measures only about 7,000 square feet, it has been decided to devote this entirely to accessory exhibits and to pitch two mammoth canvas tents within the track enclosure, which will be given over to the display of cars.

The big tent, which has already been secured, measures 110x205 feet, affording 22,500 square feet of space and an option has been secured on another tent, which, if used, will give an additional space of 14,000 square feet. Space under the canvas is being sold cheap enough, thirty cents per square foot, while that under the stand will cost the accessory exhibitors twenty-five cents per square foot. For this sum the New York Trade Association agrees to furnish uniform signs, settees or chairs in the space, provide for watchmen and keep the exhibits in apple pie order. The applications must be in by Tuesday, May 8, and allotments will be made two days later. The spaces will be awarded by drawing.

In formulating plans for the contests to be held during the three days of the carnival, every effort has been made to devise events that would savor as little as possible of the cut and dried speed trials that have usually formed the chief feature of such occasions. Some of these will be a one pint test for two and four-cylinder cars, brake tests for all kinds of cars, a vibration test, which will probably be carried out with the air of a glass of water or some other simple and non-scientific method that will appeal to the spectator; a tug of war, hill climbing tests on a specially built incline, and a relay race. Others will be races on the reverse gear, obstacle races, electric mileage races, second-hand car races, a tire replacing contest for chauffeurs and last but not least, a speed guessing contest for policemen to which Police Commissioner Bingham will be particularly invited.

William M. Haradon, Frank Eveland, C. Andrade and C. R. Mabley constitute the show committee of which Mr. Haradon is chairman.

Cars Lost in Garage Fire.

Fire in the Imperial Automobile Garage, at 52 and 54 West Sixty-seventh street, New York City, last Sunday morning, did damage to the extent of \$100,000. The blaze first was discovered in the second floor of the garage, though how it originated is not known, and the firemen were practically helpless as regards saving it. Thirty-five cars were stored in the building and all of

these were totally destroyed. Among the cars burned were those of Colgate Hoyt, J. F. B. Herreshoff, William S. Devery, Westinghouse Companies, Dr. Julian P. Thomas, John Philip Sousa, Raymond Hitchcock and J. Edwards Addicks. The insurance on the building was only \$15,000 and on the stock of the garage company, \$1,000. It is not known to what extent the individual owners held insurance on their cars, but the loss will amount to considerable.

To Make Hartford Parts.

The Hartford Automobile Parts Company has been incorporated under Connecticut laws to manufacture and deal in high grade automobile parts. The new organization has elected officers as follows: President and treasurer, E. A. Bardol; secretary, A. J. Broughel; vice-president and manager, F. H. Bogart. An office will be opened April 15 at No. 438 Asylum street, Hartford, Conn., where sufficient space has been secured, together with power, to accommodate the present needs of the company. The first product of the company will be a new type of universal Cardan joint, on which patents are now pending. The goods will be marketed under the trade name of "Hartford."

Des Moines to Produce Marvels.

Des Moines, Iowa, is to have a new automobile factory, which will probably be known as the Marvel Automobile Company, and which will be incorporated this week. Stock to the amount of \$25,000 has been disposed of to residents of that city. The company is being formed on the strength of a model "Marvel" car, designed by Fred Dusenbergh, and which has been tested on the streets of Iowa's capital. A factory will be erected at East Fourth and Vine streets.

More Room to Make Spark Plugs.

Because its business has nearly doubled in the past year, the R. E. Hardy Co., of New York City, makers of the celebrated "Sta-Rite" spark plugs and other ignition apparatus, has been compelled to seek sufficient room in which to allow for the expansion. The company is now located at 86 Watts street, instead of at 225 Broadway.

Roberts Seeks to Locate in Toledo.

According to advices from Toledo, Ohio, E. W. Roberts, of Clyde, is in the former city endeavoring to interest sufficient capital to establish an automobile factory. Roberts is high authority on the two-cycle gasoline motor and wants to incorporate it in the new car he has devised.

The Lehr Makes its Appearance.

The Lehr Agricultural Co., of Fremont, Ohio, has just completed its first automobile and it now is undergoing a thorough test over muddy roads. If successful the company will, it is stated, go into the manufacture of automobiles on a large scale.

HUGE GARAGES FOR BOSTON

Three Planned and one of them will Cost more than \$1,000,000.

Boston bids fair to become a veritable beehive of motoring activity if the plans calling for an outlay of more than \$1,000,000, which were announced last week, are fulfilled. The Harcourt Associates are to immediately begin the erection of a garage, one of the largest in the city, to be at Irvington and Harcourt streets, which will represent an outlay of \$200,000 for the building alone. It has been leased for a period of twenty years by the Bay State Garage Co., a new corporation, and will be under the direct management of its president, Chester I. Campbell. The building will consist of two stories and a basement and according to tentative plans, will be quite ornamental. There will be 36,000 square feet on each floor, or 108,000 square feet in all. The floors will have a granolithic finish, with walls of hard plaster finished in enamel. The entrance, stairways and offices will be done in oak and marble. The building is intended for the storage and accommodation for 600 cars, and will have also shower baths in it and billiard and pool rooms. It will be finished early in the fall.

Architects also were instructed to draw plans for an immense garage to be built on the block of land back of the Motor Mart in Park Square, it is stated. It is planned to have this even larger than this building and if so it will call for an outlay of more than \$1,000,000. This structure is to be built for those automobile dealers that will have to leave the buildings on the site of the old Providence station and is to be up in a year. It will contain garages and storage rooms for dealers and also extensive repair shops for each. In style of architecture it is to conform with that of the Motor Mart. The same architects who planned that structure will design the new one.

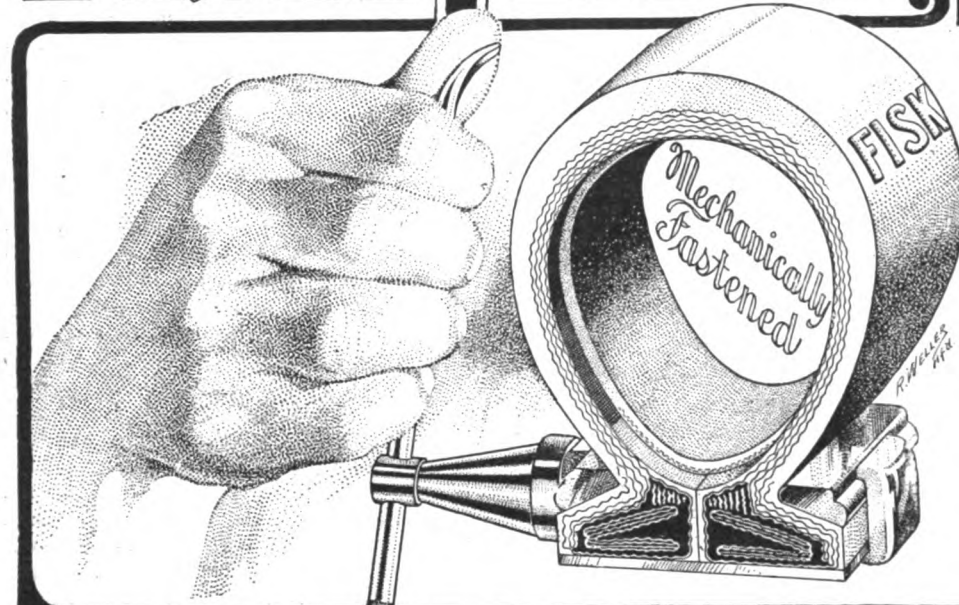
Another large garage to be ready by September next is the one to be erected on the south side of Newbury street, just above Massachusetts avenue, for the Locomobile Company of America. The offices and salesrooms of the company are now located on Berkeley street. The structure will be three stories high, topping a basement, and will contain a well equipped repair shop, in addition to a paint shop. The building will have a frontage of 120 feet and a depth of 80 feet, and will have storage capacity for about 150 cars.

Studebaker Gets Barger Garage.

The Studebaker Automobile Co., of South Bend, Ind., has purchased the W. H. Barger garage in South Lafayette street and will add it to their extensive interests. The acquisition will enable the company to continue the garage business started by Barger and will provide a downtown repository for Studebaker cars.

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EXCLUSIVE FEATURES
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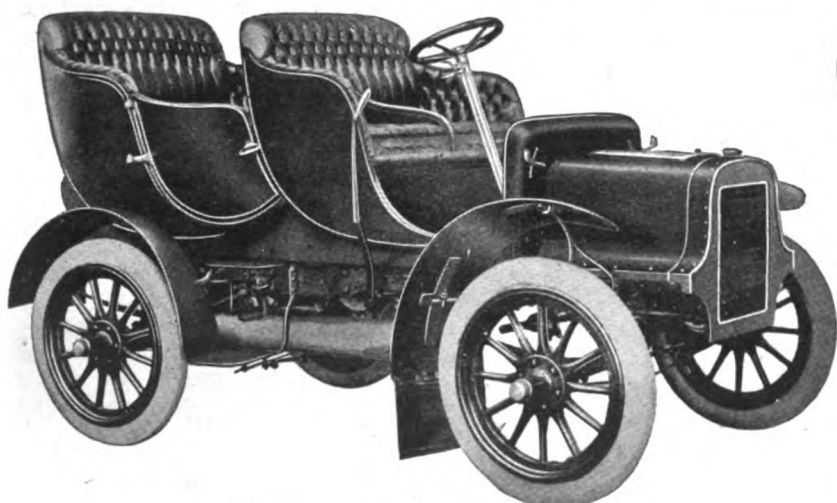
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All above the Rim!

The Fisk Rubber Co.,
CHICOPEE FALLS, MASS.

THE FISK RUBBER CO. — CHICOPEE FALLS, MASS.

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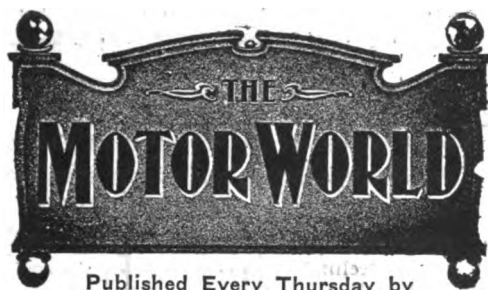
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Uncertainty of Motor Rating.

How fallacious must be any attempt to rate the capacity of an engine or any number of engines by basing calculations upon any single item of data, such as the cylinder dimensions or cylinder capacity, has been interestingly pointed out by Dugald Clerk, whose opinions on the subject are reproduced elsewhere in this issue. And it is an edict from a source of undisputed authority in the matter that has long been needed. Makers generally have given such free reign to their fancy in devising the horsepower rating of their motors during the past few years, and the capacity of engines of the same dimensions and speed have varied so widely, that it is not to be wondered at that many of these so-called ratings which are given due publicity in all seriousness have come to be looked upon in the light of a joke. Horsepower has accordingly come to be variously known as "catalogue," "calculated," "dreampower," and other terms of ridicule that the ingenuity of the skeptic happens to create.

And in this connection, it is amusing to

note that the much lauded "cylinder capacity" rating has been almost universally hailed as the solution of all difficulties in this direction. Rate cars in races, tours or any other competition by the cubical capacity of their cylinders and you have arrived at an entirely equitable basis upon which to compute the rating of any car that enters, is the contention of the advocates of this method. A moment's consideration will suffice to demonstrate how very far short of fulfilling the requirements this method falls. First and foremost it does not take as a starting point the pressure, and there is moreover no uniformity of mean pressure in any great number of different engines turned out by makers with varying standards. Of what effect then, can be a rating which utterly ignores this most important of factors in determining power? And while the pressure is an item that most strongly influences the output of the motor, even this and the cylinder capacity do not form a sufficient basis upon which the capacity of the motor, of which these essentials are accurately known, can be correctly computed.

Piston speed and engine revolutions are other factors that must invariably enter into the question if the result is expected to be at all dependable or to form a proper foundation for comparison between a number of motors, and these are overlooked entirely in any rule-of-thumb formula constituted solely by cylinder dimensions or cubical capacity. The utter impossibility of arriving at a satisfactory conclusion by basing calculations entirely upon such meagre data should be evident to even the lay mind—the comparison may not be altogether apropos, but it looks very much like rating the ability of a man to perform feats of strength or endurance by the capacity of his stomach, and it requires no digression to explain the fallacy of such an absurdity.

It is unfortunate that such an amount of confusion should have been allowed to spring up in the past on this subject, and certainly nothing that has been devised since has tended to make matters clear. Quite the reverse, in fact, so that the only available expedient would appear to lie in wiping the slate clean and starting anew from the beginning. This has been done in the case of what is known as the "Two Gallon" trial shortly to be undertaken under the auspices of the Automobile Club of America, and while such a method may be derided in certain quarters as being unscientific, it is certainly one the results of

which have a definite meaning for the man in the street and represents a step in the right direction.

Suppress Smoke and Odors.

Now that the approach of the summer riding season makes it perfectly evident that the use of motor cars will be increased very largely this year both in city and out, one phase of that use should be given instant and serious attention in every quarter. That is to say, some method of abating the nuisance of the emission of smoke and malodorous vapors from the exhausts of moving motors should be developed, and some sort of check put upon the use of such machines as are objectionable in this way. For what at one time merely served as a minor drawback to the use of the self-propelled vehicle, and was dwelt upon by the non-sympathizing public as of tremendous importance, finally coming to be the turning point of the joke-monger and the caricaturist, has now ceased to be a joke. Indeed, it threatens to become a most serious inconvenience to the public in the street, unless something is done to check the habit, for it appears to be nothing more or less than that.

Usually, the presence of smoke in the exhaust in sufficient amounts to be noticeable, is indicative of over-lubrication, a very great excess of gasoline in the mixture being required to produce a visible effect in the waste products of combustion. The evil-smelling exhaust, on the other hand, is almost wholly due to a poor mixture. Until within a year or two, it was considered impossible to run a motor with over lubrication because of the tendency to sooting of the ignition points. Then one or two foreign machines were constructed which were so constructed that they ran fully as well with a slight amount of excess oil in the engine base as they did with just the proper amount, and that being the case, it was considered a wise plan by the drivers of these machines to keep well outside the danger line, by running the oil-level as high as possible. Their example was shortly followed by other drivers who wished to be impressive, and the result was that within a comparatively short time, the habit had spread to a very wide extent, and with no real basic cause to account for it.

As to the emission of noxious fumes from the exhaust pipes, that has well nigh ceased with the adoption of the automatic type of carburetter, and a better understanding on the part of the designers of the principles

of gas regulation in carburetting devices. The gas normally emitted was but a slightly pungent odor, not distinctly offensive, and in no wise unwholesome.

At the same time, a certain amount of smoke and odorous vapor is liable to be poured forth at times even with the best of care on the part of the driver, as for instance, when hill-climbing, or when changing speed, if the carburetter is not working properly. With these exceptions, however, the gas thrown to waste from a well designed and well maintained car, should be colorless, and should have but a slight odor, and that hardly offensive. Yet its odor, no matter how slight and no matter how inoffensive to one accustomed to it, is almost certain when mingled in large quantities with the foul air of the city, to cause a tremendous amount of dissatisfaction and complaint against the motor car, unless it is in some way abated.

As to a possible remedy for the difficulty, there are two methods which might be followed, one being a mere principle, and the other mechanical. Referring to the latter, it is perfectly feasible to contrive some sort of scrubber which might be attached to the muffler, in which the use of water or some other cooling agent might be turned to a double advantage by aiding in the silencing as well as in the work of purification. By this means, the gasses could be robbed of their taint, and any smoke which might be temporarily produced, might be clarified. This could be done in an apparatus taking up but little more room than the present simpler types of muffler, and using inexpensive reagents which would not be any very great source of trouble to the user. In lieu of this and pending the possible introduction of such devices, the desired result might be obtained by stimulating a sentiment against the use of machines which were offensive in this way. The motoring public has come to regard with a certain degree of disdain the noisy car—why should not the same sort of feeling prevail with regard to the machine which emits smoke or offensive vapors? It is not a matter of moment in connection with the mere running of the car, hence it does not appeal to the maker in the same way as do those other problems which apply directly to the car's performance, yet in the growing motor traffic of the town, it is something which is not to be minimized. It is a positive evil which demands abatement, even if it is only to be obtained at some expense to the user.

Developing the Garage.

So great has been the use of motor traction now become in all of the greater communities that the business of storing and caring for them has become an institution in itself. The garage, formerly a place where cars were stored and repaired, has at length become an enterprise demanding as much of science and organization in its arrangement and method of conduct as any undertaking of production or disposal of materials. Yet unlike any of the more stereotyped lines of business, it is an enterprise wholly novel and combining a group of problems which are new in every way.

Up to the present time, the greater number of city garages have been buildings adapted from old stables or stores, and hence, arranged in the most convenient manner consistent with the expenditure warranted by the financial standing of the proprietors. As a result of this, they have been ill-suited to the work. Repair shops have been poorly lighted and over crowded; the floors have been congested with cars at all times, necessitating the moving of perhaps a half-dozen machines in order to get out one which has been "buried"; fuel and supplies have been stored indiscriminately with tools and parts, frequently at the expense of the greatest fire-risk imaginable, and in general, the method of conduct has been decidedly hit or miss.

The present importance of the large garage, however, demands a thorough and consistent organization, a suitable construction, and a working system which comprehends and provides in advance for every class of work which is to be done. The organization should include a thoroughly competent technical man placed in such a position that the value of his past experience and trained judgment may be taken at all times. The element of business ability should by no means be lacking, however, and the two should so co-operate that neither can have any degree of supremacy over the other. The construction and arrangement of the garage should be such that equal accessibility shall be granted to all of the cars, and that the entrances shall be free from blockades at all times. The repair department should be designed with a view to turning off work, rather than with the idea of economizing otherwise useless space, and the equipment should be ample for all the demands which are to be made upon it. As to the working system, it should be so cast that a complete check may be kept on all outlay of time and material, no matter of what nature, and the

returns preserved in such form that their actual value may be computed readily at any time.

There is a close parallel between the work of the garage and that of the locomotive roundhouse, and garage men would do well to study the systems which are employed in caring for railroad engines before feeling certain that they have adopted the best possible method of looking out for their business. There, each machine as it comes in from the road, is turned over to a set of "hostlers" who assume full charge of it until such time as it is ready to go out again. The engineer's duties cease as soon as he has run into the stall, and begin only when he pulls out onto the turntable again. This arrangement, coupled with a close system of reporting performance on the road and any faults which may develop, makes possible the operation of a large amount of rolling stock at a minimum of expenditure, and permits of the most economical working of the material by a combination of strict supervision and close tally of results.

In the public garage, of course, matters are entirely different. Yet, for cars which are operated under the direct management of the garage, or in the case of maintenance garages, which are coming into view here and there from time to time, some such method is entirely possible, and not simply possible, but valuable. As to the more ordinary business of storage and repairing: while any hard and fast system is more difficult to organize, still, by making a close study of the problem, it will at once appear that a method is entirely possible, and too, that once put into operation and carried out sufficiently well so that its results may be carefully tested, most beneficial results may be secured.

Motoring in Australia is not limited by any conditions due to the climate, and hence is without the element of "season" which is elsewhere to be found. Makers who are looking toward an export trade in that very extensive and rapidly growing field should bear this in mind, as well as the fact that the highway conditions are not of the best, although in all likelihood, they are but little worse than those which have to be contended with in this country. The present supremacy of the French builders in that market is attributed largely to their ability to furnish prompt delivery, coupled with good values for the purchase money. The element of substantiality is, however, the most salient feature of the trade after all.

RACING BOARD DOES THINGS

"Fires" a Snob, Refers British Protest and Arranges Vanderbilt Cup Regulations.

There was "something doing" all along the line at the first meeting of the racing board of the American Automobile Association in the rooms of the Automobile Club of America on Monday of this week. The date of the Vanderbilt cup race was set for October 6 and the elimination trials for September 22, and the latest date for entries was extended from May 15 to July 1. The entry fee was raised from \$500 to \$1,000 and the American team candidates will be restricted to twenty-five and the first five cars to finish in the elimination trials will represent America in the cup race proper. Samuel W. Taylor was practically "fired" from the racing board; the protest of the Automobile Club of Great Britain and Ireland of the Darracq car that shattered records at the late Florida carnival was disposed of and the rule which caused all the trouble was changed so that there would be no further cause for complaint. Indeed, it was a meeting fairly bristling with business.

This was the first meeting of the racing board since the appointment of the new chairman, Jefferson DeMont Thompson, and it had been delayed until the arrival from Europe of William K. Vanderbilt, donor of the cup and a member of the board. Mr. Vanderbilt was in attendance, and besides Chairman Thompson, the others present were E. Russell Thomas, A. G. Batchelder, Frank G. Webb, S. M. Butler, Sidney S. Gorham, Samuel Walter Taylor and A. L. Riker.

First of the important questions to be settled were the questions pertaining to the running of the Vanderbilt cup race and it was decided to hold the race on October 6, which falls on Saturday, with the elimination race on Saturday, September 22. Last year the latest date for the nomination of entrants for the cup race was May 15, but as there has been such delay in getting the members of the board together it was deemed unfair to allow the closing day for entries to remain the same. Accordingly it was extended to July 1, which will give manufacturers ample time to decide whether or not they will nominate cars for the third annual event. One reason that the date of the race was advanced one week over last year is that the sun will rise much earlier on October 6 than it will one week later.

One important action taken at the meeting of the board was that this year there will be only one elimination and not two as last year. Then the racing board made such a ruthless star chamber re-elimination that it came in for an avalanche of crit-

icism; accordingly the new board positively fixed the conditions by declaring that the first five cars to finish in the elimination race, and none other, will be allowed to start in the cup final.

At Mr. Vanderbilt's suggestion, representatives of the national organizations of Great Britain, Germany and Italy will be included in the cup commission. Under the original deed of the gift the Automobile Club of France was delegated to look after the interest of all the foreign contestants.

The protest that the Automobile Club of Great Britain and Ireland had filed against the differentialless Darracq car that competed in the Florida races was disposed of in summary fashion. It was referred for reply to the Automobile club of America as the international representative of the American Automobile Association. Incidentally, it was remarked that rule 62 of the racing rules of 1905 succinctly states that "protests or complaints of any kind must be made to the referee within twenty-four hours after the finish of the race involved. The protestant or complainant must accompany his complaint or protest with a fee of \$10 which shall be forfeited to the promoter if the protest is not sustained." As the Automobile Club of Great Britain and Ireland, with characteristic British energy, did not send in the protest against the Darracq until nearly two months after the races involved and then neglected the formality of enclosing the fee of ten dollars, it is expected that the reply of the Automobile Club of America to the club across the pond will be short and to the point.

As the rule which caused all the odor was not obeyed literally last year it was decided to eliminate rule 19, which says that "an automobile, motor car or car within the meaning of these rules, is a four wheeled track or road vehicle propelled by self-contained mechanical means, and provided with suitable brakes, a differential gear or its equivalent and a reverse gear" from the rules and substitute in its place the following clause: "The car hereafter must be provided with two sets of brakes, each operated independently of the other, and a motor driven reverse gear."

Weight classification from which a change had been suggested was endorsed by the board and the weight limit in open races will remain the same as heretofore, viz.: 2,204 pounds.

It was thought that it would not harm the racing rules of the American Automobile Association to undergo a thorough revision and to a committee consisting of Messrs. Batchelder, Butler and Webb was appointed to revise them and report at the next meeting. It is thought that several changes will be made.

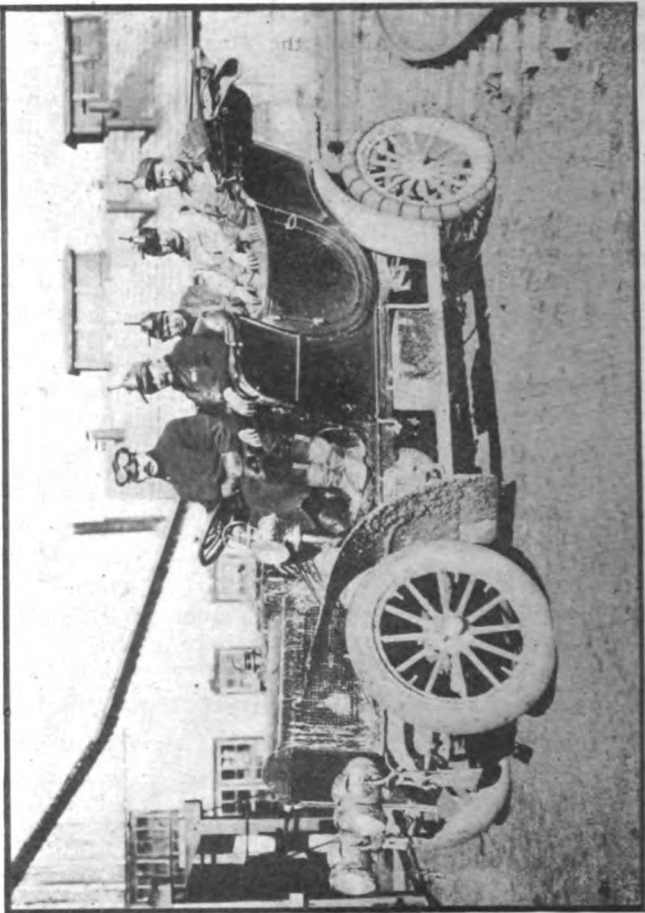
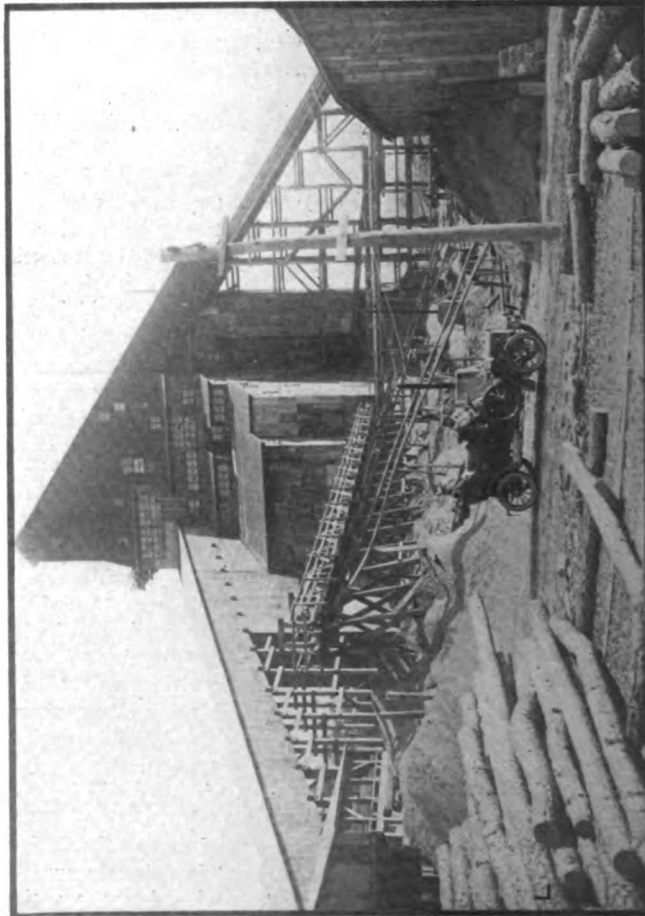
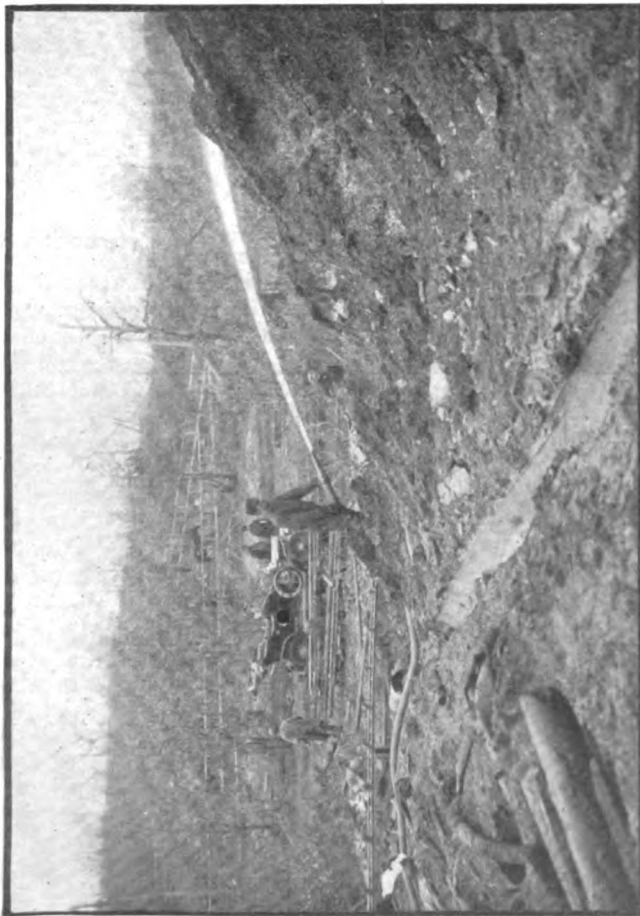
By a unanimous vote of the board one of its members, Samuel Walter Taylor, was "fired." He was not officially done away with, but the action of the board virtually amounts to the same thing. It was decided that a recommendation be made to the

board of directors that his place on the racing board be declared vacant and that President Farson appoint his successor. Taylor is the individual who, because he once made an address before the Automobile Club of America in which the desirability of more friendly relations between automobilists and horsemen—he is the editor of a horse-dog-bird-fish-golf publication which publishes a column of automobile notes weekly—was eloquently set forth, and for thus breaking into the lime-light was invited to serve on the new racing board, his selection by Chairman Thompson being ratified by President Farson. As soon as his appointment was confirmed Taylor turned up his trousers, slapped himself on the wrist and then published a snobbish article in his paper entitled "Turn the Grafters Out," in which he handled the old racing board of the A. A. A. without gloves and seared them with red hot irons of journalistic ignorance. Among other choice opinions to which the horse-dog, etc., man gave expression, were these:

"The managers, as a rule, were either commercially saturated or influenced by the moral microbe modernly designated as graft Many of them had graduated from the ranks of the now much decimated, if not defunct, Grand Army of the Bike, and their plane of view was not above the small-change pocket We are glad that President Farson is proving himself a man of broad and intelligent views as well as the courage to do the drastic thing when necessary His recommendation of Mr. Jefferson DeMont Thompson for the important office of the Chairman of the Racing Board indicates clearly that he wants to take automobile racing out of the hands of the till tenders and elevate it to the level of clean sportsmanship." This attack was published before the racing board had been appointed. Afterwards, when Robert Lee Morrell, chairman of last year's board, was being mentioned for appointment on the new board, the yellow horse paper came out with a long article which said that it was impossible for Mr. Morrell to be on the board in view of Mr. Thompson's policy to not have any one on the board connected in any way with manufacturing interests; inferred that E. R. Thomas said that Mr. Morrell "is" a stockholder in a large manufacturing company (which is not what Mr. Thomas said,) and ending up with the ambiguous statement that the assertion made by Mr. Thomas "is, in fact, a charge of dishonesty."

It is said that at the meeting on Monday, Taylor, who was in attendance, was asked to leave the room while his case was gone over, and after discussion of the case the members of the racing board came to the conclusion that the racing board could best get along without Mr. Taylor's services. Accordingly it was voted to recommend that he be dropped from the board. After the vote was taken Mr. Taylor left the meeting.

VIEWING THE COAL REGIONS FROM A MOTOR CAR.



REGULATING CUM BANK BY HYDRAULIC POWER
ONE OF THE BIGGEST WORKS THAT DO THE LARGEST WORK.

THE CAR AND ITS ESCORT OF MOUNTED POLICE,
GIVING SOME OF THE STRIKERS A TREAT.

TOURING THE COAL REGION

Arousing the Curiosity of Striking Miners— Strenuous Experiences Among the Hills.

Even a striking coal miner is a human being and is prone to forget his grievances for the time being with the appearance of anything that excites his curiosity. This was strikingly revealed to a party of tourists who made a week's circuit of the coal regions in the hills of Pennsylvania in a White steamer, and incidentally their presence in a car proved the undoing of some of the rebellious miners who have already resorted to force. This was particularly the case at the Fernwood colliery where the idle Italians and Hungarians had fallen into the practice of making a target of the breaker which was being run with non-union labor, so that the tourists thought it the better part of discretion to visit the collieries under the escort of a body of mounted constabulary, who are shown with their charge in one of the photographs. The appearance of the automobile on the scene was the signal for a general exodus from the squalid miners' settlements, making it easy for the constables to pounce upon the individuals that were wanted. Making their headquarters at Wilkes-Barre, the tourists spent two days in visiting the collieries within a radius of a number of miles roundabout, a particularly fine stretch of road between Wilkes-Barre and Pittston making this easy.

April and especially, the opening of the month, is not generally considered as an ideal time for touring and the roads were far from being in a favorable condition. In fact, local automobilists at several of the places passed through warned the tourists that they would find the way impassable. The route lay through many places of historic interest, such as Valley Forge, and while the going was particularly unfavorable on the slippery hillsides where snow and ice were still plentiful, there were many incidents to liven the trip. One of these came near precipitating a small riot, for at Royersford, a bend in the road suddenly revealed a number of horses and buggies hitched in a long line and there was considerable prancing and rearing when the machine came into view. "Who'll start this cow at \$20?" was the first thing that greeted the tourist's ears, but as every bidder, actual and prospective, immediately rushed to see the car, the auctioneer had to suspend business temporarily. From Pottstown, which was passed through shortly after leaving the cattle auction, it was a steady climb to Reading, and from the latter place the road lead up the picturesque Schuylkill Valley as far as Hamburg, which marked the end of a day's run. Pottsville was the first town made next day and it and good roads were left together; mud and more mud through Tamaqua and Hometown, though the presence of a mountain stream paralleling the road in innum-

erable cascades, one of which is shown by an accompanying view, provided scenery that more than made up for the shortcomings of the road, which at points was so steep that a native driver found six mules unequal to the task hauling a wagon load of produce up the hill and was jettisoning some of his cargo of vegetables in order to make it.

Through Hazleton, Harleigh, Jeddo, Eckley, beyond which a descent was made of the treacherously slippery Eckley Mountain, a feat which none of the natives seen along the road further on would credit. Then on to White Haven where for miles at a time the country is so bleak and sparsely settled as to resemble some of the far western States more closely than Pennsylvania. The return trip was made to Wilkes-Barre via Scranton, Elmhurst, Daleville and Tobyhanna, between which places the roads were all but impassable quagmires against which the tourists were gravely warned, but managed to overcome them without any delay. Mount Pocono was climbed without any difficulty and from here the route wound irregularly through small hamlets to Nazareth, where an agreeable surprise came to light in the shape of a beautiful stretch of macadam to Bethlehem and from the latter town it was but a matter of a few hours to Philadelphia.

Minneapolis Club Elects Joyce.

At the fourth annual meeting of the Minneapolis (Minn.) Automobile Club, which was held last week, the treasurer's report showed the organization to be in a healthy condition both numerically and financially. During the past year this sturdy organization has increased two-fold, now having a membership of 359 as against 168 one year ago. There is a balance on the books of \$524.21. The club voted to lease the first floor of the Plaza hotel for its permanent clubhouse. These officers were elected: President, Frank M. Joyce; vice-president, Asa Paine; secretary, John Rhildaefter; treasurer, R. J. Smith; trustees—Dr. C. E. Dutton, E. J. Phelps, Horace Lowry, W. F. Brooks and F. W. Commons.

Louisiana Motorists Get Together.

Fifty automobile owners in the Pelican State have formed the Motor League of Louisiana and have completed organization by electing these officers: President, Samuel Weiss; first vice-president, P. S. Milner; second vice-president, W. B. Fayssoux; treasurer, J. M. Sherrouse; secretary, Dr. A. J. Mayer; governors—Dr. J. M. Magruder, C. C. Hartwell, Samuel Stone, Jr., Otto T. Maier, L. K. Michalson, T. R. Toley and J. M. Burguires.

Austin, Texas, forms a Club.

The Austin Automobile Club, of Austin, Texas, has been organized with the following officers: President, Dr. Bennett; vice-president, Frank Covert; secretary-treasurer, James Bartholemew.

HOLDING ON TO BRAZIER

His Resignation as a Director of the A. A. A. Not Accepted—Talk of Signboards.

It is evident from the action of the directors of the American Automobile Association that their meeting last week in refusing to accept the resignation of H. Bartol Brazier from the board, that the withdrawal of the Philadelphia and Pittsburgh clubs from the association is not considered of any great moment and indicates further that there is a belief in the return of the erring ones to the fold in the near future. Tabling Mr. Brazier's resignation virtually places the three A's in the unusual position of having as a member of its directorate a man who is not a member of the association. On this account it does not seem probable that the defection to the American Motor League is apt to be permanent.

In the absence of President John R. Farson, Louis R. Speare, of Boston, presided. An offer of the Automobile Club of America to donate \$2,000 to be employed in the erection of signboards between New York and Boston and New York and Philadelphia, was accepted, and Secretary Gorham was requested to submit a plan for a uniform sign. It is probable that the design accepted will consist of a dark blue enamel background with white letters and an arrow of the same color.

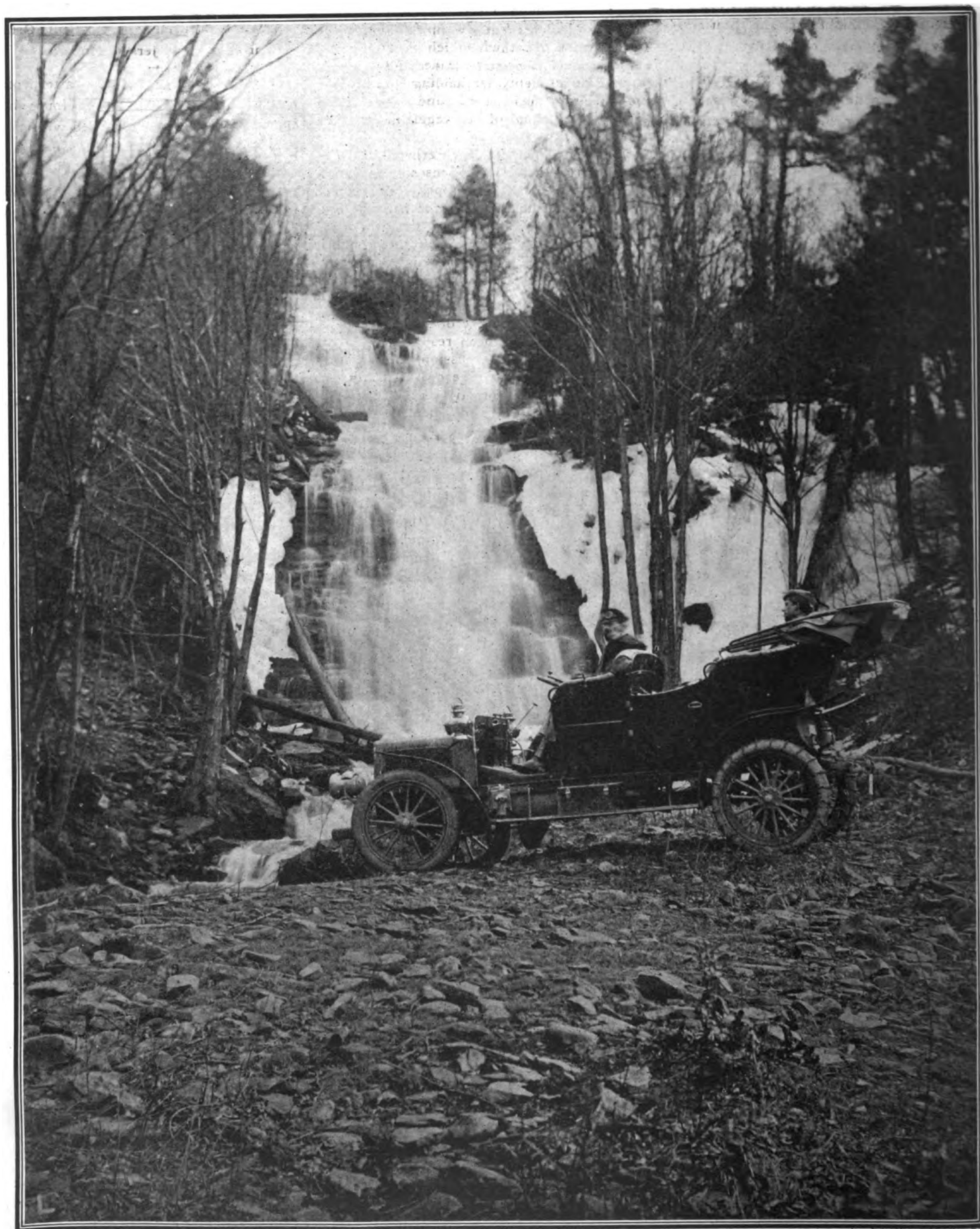
The Macon Automobile Club, of Georgia, was elected to membership and it is thought probable that the Savannah club will come into the fold at the next meeting. In connection with the admission of the first named body, work has already been started to organize a state association in Georgia. Efforts are also being made to form State associations in Minnesota, Missouri, Michigan, Iowa and Indiana. Judge William H. Hotchkiss, of Buffalo, sent regrets at his inability to accept the chairmanship of the Good Roads Committee and a new chairman will be named in the near future.

Besides Mr. Speare, the others present were: Secretary S. S. Gorham, A. R. Pardington, Long Island Club; Dave Hennen Morris, A. C. A.; S. L. Haynes, Rochester; J. H. Edwards, Hudson, N. Y.; George A. Post and George E. Farrington, New Jersey; W. T. White, Cleveland.

Asa Goddard Becomes a Buckeye.

Asa Goddard, of Worcester, Mass., will not hereafter be active in Massachusetts' automobile affairs as he has taken up residence in Cleveland, Ohio. Mr. Goddard already has been appointed secretary of the Cleveland Automobile Club to succeed Charles Marvin, who has resigned.

"The A. B. C. of Electricity" will aid you in understanding many things about motors that may now seem hard of understanding. Price, 50c. The Motor World Publishing Co., 154 Nassau Street, New York City. ***



A CASCADE IN THE COAL REGIONS.

HOW BAIL MAY BE GIVEN

The Amendment Simplifying the Matter New Part of New York Law.

As was fully expected, Governor Higgins has signed the amendment to the present New York State automobile law, which was passed by the legislature. It gives automobilists the privilege of depositing cash bail or leaving their cars in lieu of security upon being arrested for any alleged infractions of the law. It also provides that a motorist may give a bond executed by a legally organized fidelity or surety company and be released from custody. The full text of the law follows:

Section 1. Subdivision three of section six of chapter five hundred and thirty-eight of the laws of nineteen hundred and four, known as the motor vehicle law, is hereby amended so as to read as follows:

Subdivision 3. Release from custody, bail et cetera.—In case the owner of a motor vehicle shall be taken into custody because of a violation of any provision of this act, he shall be forthwith taken before an accessible captain or sergeant or acting sergeant of police in any city or village, or any justice of the peace or magistrate, and be entitled to an immediate hearing; and if such hearing cannot then be had be released from custody on giving a bond or undertaking executed by a fidelity or surety company organized under the laws of this State and having a deposit of at least two hundred thousand dollars with the superintendent of insurance of this State, said bond or undertaking to be in an amount not exceeding the maximum fine for the offense with which the owner is charged and to be conditioned for the owner's appearance in answer for such violation at such time and place as shall then be indicated; or on giving his personal undertaking to appear in answer for such violation, at such time and place as shall then be indicated, secured by the deposit of a sum equal to the maximum fine for the offense with which he is charged, or in lieu thereof, by leaving the motor vehicle, being operated by such person with such officer; or in case such officer is not accessible, be forthwith released from custody on giving his name and address to the officer making such arrest, and depositing with such officer a sum equal to the maximum fine for the offense for which such arrest is made, or in lieu thereof, by leaving the motor vehicle, being operated by such person, with such officer provided, that in such case the officer making such arrest shall give a receipt in writing for such sum or vehicle and notify such person to appear before the most accessible magistrate, naming him, on that or the following day, specifying the place and hour. In case security shall be deposited, as in this subdivision provided, it shall be returned to the person depositing, forthwith on such person giving a bond or undertaking of a fidelity or surety company, as in this section provided, or on such per-

son being admitted to bail as provided in section five hundred and fifty-four of the code of criminal procedure, and the return of any receipt or other voucher given at the time of such deposit. In case such undertaking of a fidelity or surety company be not given, or such personal undertaking with security or such deposit shall not be made by an owner so taken into custody, the provisions of section five hundred and fifty-four of the code of criminal procedure, shall apply.

2. This act shall take effect immediately.

Tradesmen to Oppose Recklessness.

At a meeting of the Board of Governors of the New York Automobile Trade Association held recently, the subject of reckless speeding and the numerous fatal accidents for which it has been responsible in the past came up for discussion, and the association placed itself on record as firmly discountenancing such practices as well as desiring to aid in suppressing them, by the following resolution:

"That the New York Automobile Trade Association desires to use all its influence to abate the evil of careless and reckless driving and it is also its desire to co-operate with and give all possible aid to the police authorities and others in tracing and apprehending such drivers, thereby reducing and possibly eliminating a great part of this danger, and bringing to justice drivers causing injury or death."

Peter Fogarty and C. Andrade, Jr., were appointed a committee to take this resolution in hand and see that it was brought to the attention of the proper authorities.

Iowa Club Reorganizes Itself.

Complete re-organization has been undergone by the Iowa Automobile Club, of Des Moines, and the new officers which were selected at the annual meeting last week, formulated an aggressive campaign for the coming season. Several tours, race meets and hill climbing contests will be held, and a hill climbing contest is on the tapis for the near future. The officers elected are as follows: President, W. S. Donahey; first vice-president, D. B. Fleming; second vice-president, Dr. W. W. Van Werden; secretary, Harold Wells; treasurer, Grover C. Hubbell; executive committee, L. Aulman, chairman; W. Kitto, W. E. Hamilton, and the officers.

When Law Breaking is Justifiable.

At last an occasion has come to light upon which an excess of the speed limit is considered justifiable in the case of the common garden variety of automobilist. "If your house is burning down and your property and the lives of your family are at stake, you should have the same immunity from arrest as the fire chief enjoys when responding to an alarm," said a Chicago police justice in releasing a chauffeur. "But," he added, "remember that is one of the very few excuses that will be considered by this court."

PASSED AT MIDNIGHT

Much Amended Frelinghuysen Bill Gets Through New Jersey House.

From 4:30 o'clock Tuesday afternoon until Wednesday morning, the House of Assembly of New Jersey wrestled with the Frelinghuysen automobile bill and the amendments made to it by the Judiciary Committee of the Assembly and after making some changes in it passed the measure by a vote of 35 to 0, so that all that now remains to be done before the measure becomes a law is the signature of Governor Edward Caspar Stokes. The fight in the main was over the amendment abolishing the force of twenty-one special officers to enforce the law as provided for in the original form of the bill. Assemblyman Hoagland, Mr. Frelinghuysen's colleague, led the fight and precipitated a long, and at times acrimonious, debate, offering as a substitute for this amendment that seven special officers be appointed. After a long and arduous debate, a vote finally was taken and the clause providing for seven special officers to enforce the automobile law adopted by a vote of 33 to 19.

Mr. Hoagland also secured an amendment allowing the "commissioner of motor vehicles" to revoke a license for "good cause." Mr. Elvins of Atlantic, secured an amendment including "gravel roads" in the list of those upon which "chain or armored tires" cannot be used, so that hereafter, if the Governor signs the bill, no won-skidding devices can be used in New Jersey. Soon after these amendments were acted upon Mr. Crowther made a motion to adjourn, assisted by Mr. Wright, who insisted that as the bill had already been cut so that no one could tell exactly what its provisions are, it should be laid over until copies could be printed and the members have an opportunity of studying the provisions of the measure. After an hour's wrangling, Assemblyman Hoagland moved that rules be suspended and the bill placed on final passage. Although objections were offered the motion was carried and as the distinguished legislators were tired, it being then past midnight, the measure went through for final passage with a rush, not a member voting against it.

In addition to those over which the fight was made, the principal changes made by the amendments are the reduction of the age limit at which drivers may secure licenses, from 18 years to 16 years and the reduction of license fees from one dollar a year for cars of thirty horsepower and under and two dollars for cars of more than thirty horsepower. It also is provided that non-residents make the Secretary of State their agent on whom summons in damage suits may be served.

If signed by the Governor, the new law will go into effect July 1, 1906.

TO CONTROL THE INLET GAS

Unique Method of Throttling which Tends to Prevent Stratification of the Charge.

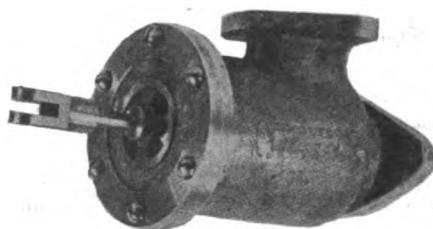
It is commonly recognized that the matter of controlling the mixture before it enters the cylinder of a gasoline motor is quite as delicate an undertaking as is that of producing the gas itself, inasmuch as the degree and method of throttling may under some circumstances affect the conditions which prevail in the mixing chamber as seriously to interfere with the proportioning of the gas and air. Up to the present time, the attention of designers has been centered largely upon the evolution of the generator itself, the questions of main and auxiliary inlets, and the jet proportions being of very material import. Now that these are being settled with apparent success, however, it is becoming more and more apparent that the mixture once formed, cannot be handled in the same manner as can steam or any of the more permanent gases.

Thus, the immediate effect of throttling is to increase the velocity of the inrushing gas, and to create in it swirling or eddying effects, which may or may not affect its constituency after its passage through the throttle valve. But its most important effect lies in its influence over the amount of lift from the jet, which is in proportion to the velocity of the incoming air. The natural tendency which this incurs of producing a gas which varies in quality in accordance with the position of the throttle, has been counteracted in modern carburetors by the use of the supplementary air inlet valve. But in itself, this is not wholly satisfactory, since in the multi-cylinder motor, the inlet valves are so far removed from the carburetor—in some cases being at different distances from it, as well—that the volume of gas contained in the induction pipe fails to respond immediately to the opening and closing of the valve, on account of its inertia and elasticity; as a result of which there is a lag in the response of the carburetor to the draughts made upon it by the inlet valves, and a certain stratification of the charges in their passage through the induction pipe. Hence, while the charge passing through the carburetor at the instant of any given period of admission though lagging slightly behind the demand, may be exactly of the required proportion, that which actually reaches the cylinder prior to the closing of the inlet, may be totally different from it.

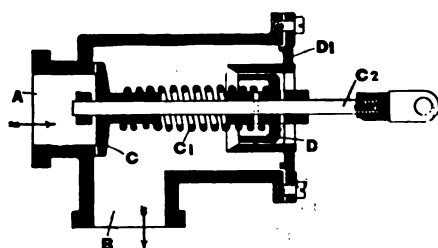
It is this condition which accounts in a great measure for the erratic behavior of some motors while under control, that is to say, while being throttled or opened up, the above mentioned tendency, obviously not applying when the speed and load become constant and remain so for an appreciable length of time. But as the

motor which is applied to a motor car, must, of necessity undergo frequent and important change of speed, it is evident that its ability to vary without suffering from starvation or too rich a gas, even during the period of change, is a measure of its fitness for the work.

Probably the most effective method of governing the gas which has been contrived up to the present time, is that in which the lift of the inlet valves is varied; by which means the throttling takes place directly



at the cylinder, and the gas, coming to them in its condition of final mixture—be it well or poorly proportioned—is in no way affected by the action, any more than steam is affected by opening or closing the main valve of a steam engine. This, however, is not applicable to some types of motor, nor is it fully accepted in principle even, by a majority of builders. That being the case, some method of throttling other than that by means of a simple valve, would seem to be an approach to the desideratum, provided only that it could be constructed in a



manner calculated to satisfy all the requirements of the case. A valve which is intended to act just in the same manner as the automatic variable lift inlet, proportioning the volume of the charge to the desired conditions of throttling, has been in use for several years in England, and has recently been put upon the market in separate form. It is here presented merely as an illustration of one possible method of controlling the inlet gases in which the element of duration of the inlet period enters, the result being that the effect upon the carburetor is precisely the same as though it were placed in close proximity to the cylinder in operation, and the suction governed directly by the opening of the inlet valve instead of lagging behind it and being affected by the inertia and elasticity of the gasses.

As here presented in sectional elevation, the construction of the valve is apparent, its formation being that of an angle cock, the valve proper, C, being slidably mounted on a

central stem, and held against its seat by a helical spring C', the tension of which is variable. The stem, C", is also slidable in its guides, and is under control of the operator or governor of the motor, its position controlling the tension of the spring which is pinned to it. A second plunger valve, D, sliding in its cylinder D', also is pinned to the stem, and is so arranged that when the latter is in its innermost position, which gives the maximum spring tension, and hence corresponds to the position of full throttle closure, it will open, admitting fresh air from without to the induction pipe, thereby relieving the depression in the induction pipe, allowing the throttle to keep its seat, and at the same time serving to scavenge the cylinders, cooling them and purifying their contents.

The action of the device, is then, precisely similar to that of the automatic valve, the valve C, opening somewhat after the opening of the inlet valve, and closing in advance of it as it begins to close and diminish the suction. The degree of this lag and lead is, of course, proportional to the spring tension, and is quite under the control of the operator. By this means, the draught upon the carburetor is made sharp and well defined, the admission of gas to the inlet pipe being limited in duration to a close approach to the time of admission to the cylinder, while at the same time, the suddenly produced suction secures a strong inductive effect upon the jet and mixture.

It would seem that the employment of some such method as this in connection with the throttling of the charge, would have a most beneficial effect upon the gas after its passage through the mixing chamber, to say nothing of the good results to be expected from limiting the period of generation to within reasonable measure of the admission period of the motor. It should produce the same general effect that formerly was secured by placing an individual carburetor close up to the cylinder, yet at the same time, secure all the advantages of uniformity of adjustment and action which is possible where a single carburetor is made to serve all the cylinders in turn.

Advantages of Planetary Transmission.

In connection with the rapidly increasing use of the planetary or epicyclic type of transmission gearing, which, in its application to the motor car is decidedly an Americanism, a summing up of its advantages by a foreign expert is all the more noteworthy, since it has not been looked upon with favor by many of the over-seas designers.

The gear wheels are constantly in mesh, says a well known British engineer. The thrusts are evenly balanced, which saves friction on the bearings and gives high efficiency; the gears engage at several points, so that great strength is obtained with small teeth, and a light and compact gear is possible.

THE ARMORED GOLD CAR

Details of the Treasure Bearing Vehicle which will Defy Yaqui Robbers.

Mule wagons for transporting gold from its mines to the nearest shipping point have been found too slow by the Giroux Consolidated Mines Co., of Los Angeles, besides, which the route lays through a country infested by Yaqui Indians and even a large armed escort does not make the party immune from attack. The company accordingly decided to employ automobile transport and wishing to combine both speed and safety, fixed upon an armored car as best suited to fill the requirements. An order was placed through the Western

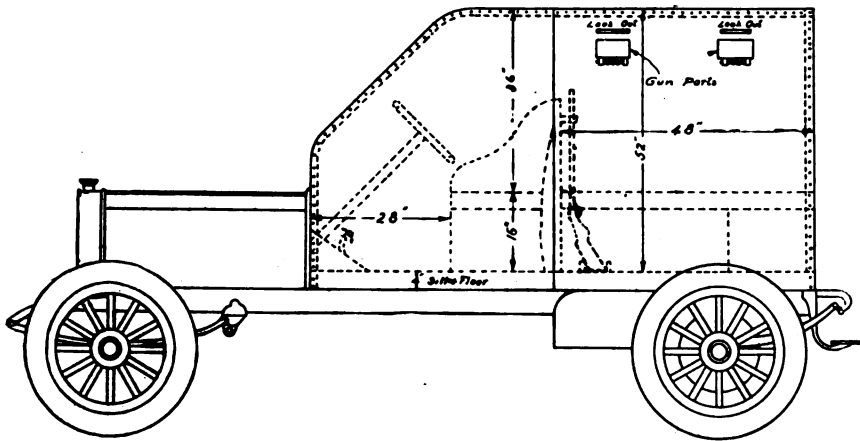
What the Engineers Discussed.

Noises of the automobile in operation, composition of metal for frames and the adoption of a fixed standard for screws, nuts and bolts, were the subjects that occupied the attention of the Mechanical Branch of the Association of Licensed Automobile Manufacturers, at an all-day meeting held on Friday last, in this city. The causes of and the means of obviating the various noises caused by the motive power and its accessories, particularly the gears, were thoroughly gone into and the conclusions reached on both points should be instrumental in overcoming this objection to a great extent. Frame construction and the composition of metal for frames were discussed in connection with a number of chemical analyses of metals used for the purpose by European builders. The matter

NOVEL VALVE MECHANISM

A Radical Departure which Tends to Secure Compactness and Accessibility.

There has been exhibited in England recently, a motor which embodies in its valve mechanism a more radical departure from the ordinary than has been seen for a long time, the main idea in its construction being to secure compactness and accessibility, which has been done in a most novel manner. It is mounted in the Green car, a newcomer in the market.



Motor Car Co., of Los Angeles, Cal., and the latter firm drew up a rough plan for the guidance of the engineers of the E. R. Thomas Motor Co., who will build the car.

The accompanying side elevation, though it merely represents a tentative plan, suffices to give an idea of the details of construction of the armored part of the car, as well as its armament and what the completed vehicle will look like. From the rear end of the bonnet a steel house will cover the remainder of the car, having a sloping front with conning spaces for the driver and his companion, who will probably be in a separate compartment from the remainder of the armed force occupying the box-like steel tonneau in which the gold will be stored and which will be provided with gun ports facing every point of the compass except directly ahead.

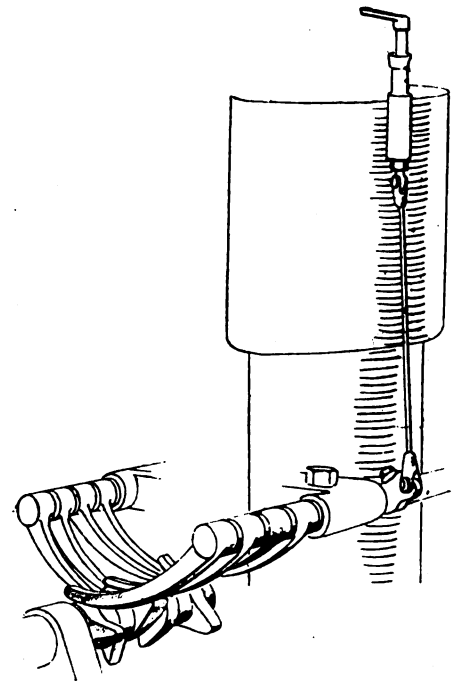
The armament will consist of a Gatling gun mounted in the forward compartment and having a range of fire on a arc of a circle of about 50 degrees ahead. It will be operated by the driver's companion in the left hand seat. Two seats will be provided in the tonneau and racks for repeating rifles which may be handled by two men or possibly four, there being ample accommodation for the latter number. Two revolving stools that may be folded and stored out of the way when not in use will also be provided for the tonneau.

of adopting fixed standards for small parts such as screws, nuts and bolts, which was first discussed at a previous meeting, was practically settled by the consideration of further details that are thought to be final. President A. L. Riker was in the chair.

An Always Open Garage.

Milwaukee, Wis., is to have the benefit of a most modern garage system this season, which the Jonas Automobile Company is about to put into operation. According to the plan, the storage and repair branches will be entirely segregated, each being in charge of a competent man, and two complete shifts of employees will be maintained, working night and day. All vehicles, whether intended for business or pleasure, will be cared for entirely by the company, being delivered to the owners' places of residence or business in the morning, and called for at night, after which they will be over-looked and repaired by the night gang. Fifteen subscribers already have been secured for this service, and others will soon be brought into the fold, it is expected.

Ground was broken last week in Trenton, N. J., for the plant of the Walter Auto Car Co., adjoining the old Consumers' Brewing plant in Hamilton township.



As to the valve gear, which is the most striking thing about the machine, it is actuated by a group of eight cams mounted on a stub shaft at the front end which is in line with crank shaft and directly over it. Bearing down upon the case are a set of finger levers through which a set of eight rocking shafts are actuated, which, in turn operate the valve tappets through the medium of short-throw cranks linked to vertical members having off-set arms at their extremities which over-reach the valve stems. The peculiar feature of the contrivance lies in the fact that the rocker shafts are telescopic. Thus, the foremost cam actuates the innermost rocker shaft which extends through to the rear cylinder, the second cam actuates a shaft which reaches through to the next, and so on. One set of shafts is disposed on each side of the engine, thus avoiding any crowding of the mechanism.

The valves are located in the cylinder heads—a position which is rapidly growing in favor, it would seem—and as the tappets are always directly in contact with the stems, there is no rattling or clicking in connection with the action, thus avoiding unnecessary noise.

ABOUT SECOND HAND CARS

Growth of the Trade in Them—What Buyers Must Expect to Get.

Farm lands, farm mortgages and mortgages on crops are only a few of the things that are offered in exchange for second-hand automobiles, and still it is generally considered that the farmer is averse to the motor car. Jewelry, horses and wagons and chattels of every imaginable description are some of the others, and in part, they shed some light on a query that has become almost as commonplace as that old one about pins. What becomes of all the second hand automobiles? Take New York State's registration alone and it is almost impossible to even approximately estimate what proportion of its grand total of more than 25,000 certificates are represented by cars that have either ceased to exist altogether or have, through hidden channels of trade, found their way from their original place of registration, and are now swelling the total of some other State's registration, or have doubled that of their own by being listed twice under different owners.

As to those that have actually ceased to exist, it is not a difficult matter to answer for them, because nothing short of total disintegration is sufficient to bring this about. Not until a car is wrecked beyond repair or falls a victim to the fire that is put down by newspaper scribes as an explosion of gasoline, does it totally succumb. People who bought cars of an early vintage stored them in many instances because it was difficult to dispose of them; there was no demand for second-hand cars then and no means of getting them into the channels of trade if there had been for the second-hand dealer had not yet appeared on the scene. Now there is no difficulty in finding all the old cars that one wishes to become possessed of, should anyone in his right senses fall a victim to such a desire. Note the advertisements and it will be seen that there are 1902 and 1903 cars without end, and 1902 practically means going back to the dark ages of automobilism, but there they are and they are being sold.

There is a demand for second-hand cars and it has become so large that there are now in New York City alone at least half a dozen good-sized concerns who handle nothing else. They are willing to put a price on almost anything that runs on wheels and that has an engine in it; with some of them it is a matter of utter indifference whether the engine will ever run again—if it be there, that is sufficient and it is not too much to say that some of those old cars have engines which will require strenuous persuasion before taking up their

duties once more. Some of the cars that finally end up at the second-hand dealer's establishment look as if half a century of hard usage had been their lot instead of a few years, and others look as if their days had come to an untimely end long before the second-hand dealer ever set eyes on them—as if a junk dealer might have been a far more appropriate buyer in their case. But it is marvellous what a little judicious slicking up will do, for your second-hand man does not devote any unnecessary attention to his subjects. He makes every stroke of the brush and every bit of adjusting count so far as appearances go and be it said, appearance is what he seeks first, last and all the time.

His customers look for it and base their calculations on it—they want looks and they pay for them, the dealer assures them that the car is practically as good as new and if its appearance bears out his statement it may have a power plant that will require more expenditure for repairs than the entire consideration which exchanges hands, but still the buyer will take it and think he has done well. He is usually a long way off when he discovers that things are not always what they seem and that his path will be a thorny one until the car's motive power has had an overhauling—so far off, that it will cost him as much if not more to try to obtain redress as it will to have the machine put in order, except where the latter thing that has already passed beyond the shades of possibility. On the other hand there is many a machine which to the uninitiated eye appears nothing short of a candidate for the junk pile, but which in reality is still in excellent condition and requires nothing but an overhauling and paint to make it both serviceable and presentable.

This represents part of the other side of the question for all second-hand cars are not wrecks by any means. Every one of the multifarious considerations that cause the owner of a chattel of any description to wish to part with it soon after he has acquired it, apply with equal if not greater force to the automobile, probably the latter for it often finds a buyer who only comes to an appreciation of the fact that he has undertaken more than he is able to stand when he has had the machine for a short time and then he is compelled to realize on it quickly, which means a sacrifice. Then again, there is the motorist who has purchased a small car to start with and has outgrown it almost before he has mastered all of its ins and outs—he wants a bigger car and wants it right away, and his first purchase finds its way to the second-hand mart. Cars that have been used for a single season, often for less than that time, all find their way to swell the collection and in many cases they have had excellent care. They have not actually depreciated anything like as much as the fact that they are no longer new causes them to appear. Fashion has a great deal to do with this depreciation, but

the mode has little effect upon the reliable running of a car.

Of course, the great bulk of the machines that find their way into the hands of the second-hand dealer for refurbishing and a change of owners, are of the runabout and light touring class, but so far as actual value is concerned the aggregate selling price of the high-powered touring cars that are disposed of through the same channels, is equal to if not greater than that of the small cars. New York has become a center of exchange for the second-hand car—not only does it draw upon all the surrounding territory for its supplies, but it sells and ships them to all parts of the country, probably the greater part of the machines disposed of in the second-hand mart of the metropolis find a new home in some other State, frequently quite distant. It seems inconceivable at first sight, but even the little teakettle steam runabouts of unlamented memory, are still changing hands—at about one-fifth or less that what they originally listed for. And the mass of finished parts ready to assemble with which the manufacturers of such vehicles found themselves burdened when the slump in popularity overtook them are also in the second-hand market and all the essentials of the small steam automobile may now be had for a song.

The uses to which these small second-hand cars are being put by their new owners in the rural districts are almost as numerous as the vehicles themselves. The demand is naturally almost universal for gasoline machines, although an occasional advocate of steam will uphold his faith to the extent of buying one of the little vapor gushers with wire wheels and every now and again an electric will be called for, but they are greatly in the minority. The extent to which the business of handling second-hand automobiles has grown in a year or two and the fact that the chief stock in trade of the industry is the small car, sheds light on at least one thing, and that is the disappearance of the gasoline runabout from the city streets. It is more numerous than ever—the little car, but it has found a new set of supporters who place reliability above speed and fashion.

Twenty Rapids for Sight-Seeing.

An announcement that conveys a victory for the gasoline car as well as the Rapid Motor Vehicle, of Pontiac, Mich., is to the effect that the American Sight Seeing Coach Co. have recently made arrangements to use a number of Rapid 20 passenger gasoline driven cars. This company extends its operations over a number of the principal cities in the country as far west as Salt Lake City, and as the facilities in each large city call for quite a number of cars, a considerable outlet is thus opened. Undoubtedly this will mark the entrance of the gasoline car into the field in question on a scale hitherto unattempted in this country.

NON-STOP ON BROADWAY

Part of New York's Great Thoroughfare the Course for a Six-day Trial.

Spring brings other things than green grass and budding trees and one of them is the opportunity it provides for running six-day non-stop contests. The start of one of these events usually seems to be the signal for the elements to let loose on the contestants and in the case of the 50 horsepower Wayne car which has been running up and down Broadway all week, under the auspices of A. L. Kull, manager of the New York branch.

The route runs from Long Acre Square up Broadway to 110th street and back, the round trip making 7.6 miles, and

air-cooled Marmon car, and a growing recognition of its sterling worth.

Among the agents who have been doing exceptionally good work, Mr. Rice cites the Rickey Machine Co., of East Orange, N. J., which has been making demonstrations almost daily over the famous Eagle Rock Hill, with the result that their order book is the fatter for it.

The Brazier Auto Works, of Philadelphia, Pa., has also been putting in some pretty goodicks, and has secured an entering wedge in the shape of a number of sales, with more in sight.

At the local show in Baltimore, George R. Snodeal, the agent in that territory, showed two complete Marmon cars and the chassis which attracted so much attention at the Boston show. Baltimoreans were not slow in evidencing their interest

is included a list of the parts and accessories which regularly are furnished with the stock models, and which would seem to include almost everything the heart of the motorist could desire from a clock to tell him the time of day down to a set of some thirty-odd machinists' tools for use when things go wrong. One thing only seems to be lacking, and that is a cake of soap, although as a matter of fact, a box is included which is meant to contain one. In addition to this, the catalogue contains a score of interesting facts concerning the Matheson cars in their various types, and some very well mounted illustrative matter including pictures of the massive truck which was seen in New York at the time of the show.

Big Garage for Springfield.

The Norcross & Cameron Co., of Springfield, Mass., are planning to erect the largest garage in that part of the State, on the land at 55 and 57 Bridge street, bought last week. The garage will be two stories high, of brick and steel construction. On the ground floor will be 50 stalls, each enclosed in a wire grating and with a door that may be locked. The repair shop and offices will be on the second floor and an electric elevator will be the means of hoisting cars to the repair department.

Bulgaria Buys American Cars.

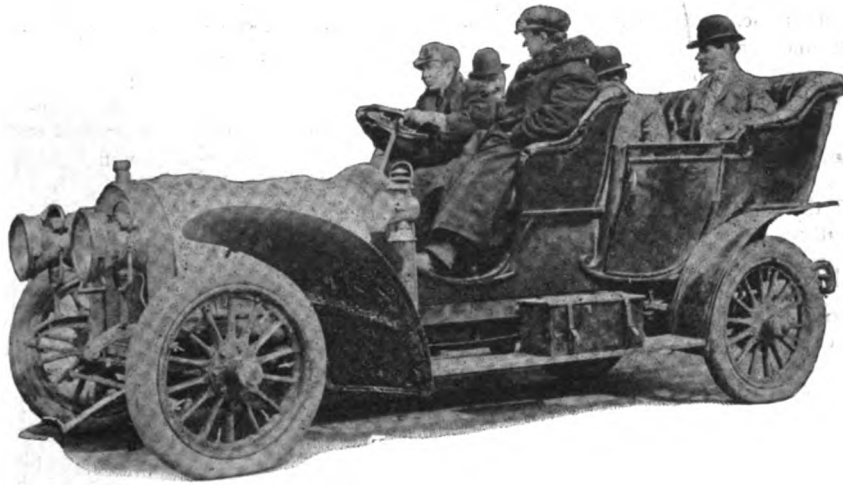
Bulgaria is a country where it has not been considered safe to travel in an automobile up to very recently owing to the fanatic attitude of the rural population toward modern inventions. But even in this extremely backward part of the world the advantages of the motor driven vehicle are beginning to be appreciated, as witness the fact that the Olds Motor Works have recently shipped to the city of Barna, Bulgaria, a number of eighteen passenger wagonettes and delivery cars.

Indianapolis Develops a Big Buyer.

An insane man at Indianapolis created quite a stir among the automobile dealers of that city last week. He went to all the leading agents and ordered machines of every make. He talked intelligently and seemed to be well informed on all matters pertaining to the operation as well as the mechanical end of the machine. He had ordered something like \$30,000 worth of automobiles before his condition was discovered.

Double their Testing Department.

Increased factory output, must in any case, involve an increase in the capacity of each and every department in the line of production of the motor car. Hence, the recent doubling of the size of the testing department of the Electric Vehicle Company's Hartford (Conn.) plant, has a not inconsiderable insignificance. The new testing service will be able to handle six motors at once.



WAYNE CAR ON ITS SIX-DAY NON-STOP TRIAL.

the car has been covering the course with such clock-like precision that there was scarcely a minute's difference in the time of the various laps. Besides Mr. Kull himself, who is doing his "turn" at the wheel, there are four other drivers who spell one another about every five and a half hours.

Night and day the car has swung back and forth on alternate sides of Broadway, without even "dropping a stitch" as any time, as Mr. Kull expresses it, and he is confident that despite the bad weather, no adjustments whatever will be required before the end of the run. An accurate record is being kept of the amount of gasoline and lubricating oil used and this foresight should be productive of interesting data. As will be seen from the accompanying photograph of the six-day Wayne, the car does not run light, but always carries its full complement of passengers.

How Marmonism is Spreading.

Sales Manager Herbert Rice, of Nordyke & Marmon Co., Indianapolis, Ind., who has been swinging around the Eastern circle of agencies, has returned home wearing "The smile that won't come off." On every side, he states, he found gratifying evidence of the increasing popularity of the

in the double three-point suspension of the Marmon, for in their city with its rough Belgian pavements and steep hills, the easy riding qualities of the car, coupled with its hill climbing ability, is a combination which would naturally meet with much appreciation.

Seven Electrics for Carnegie Family.

Recognition of the utility of electric carriages is demonstrated in the purchase by George L. Carnegie, a nephew of Andrew Carnegie, of seven Pope-Waverly electrics of different types, all of special design, so far as the body work is concerned, for use at "Plum Orchard," an island off the Florida coast at Fernandina, which is owned by the Carnegie family and inhabited exclusively by them and their servants.

The vehicles include three speed road wagons, a twelve-passenger omnibus and eight-passenger break, a surrey and a combination truck and passenger car. All of the seven machines are handsomely finished and fitted with all the accessories known to the automobile trade.

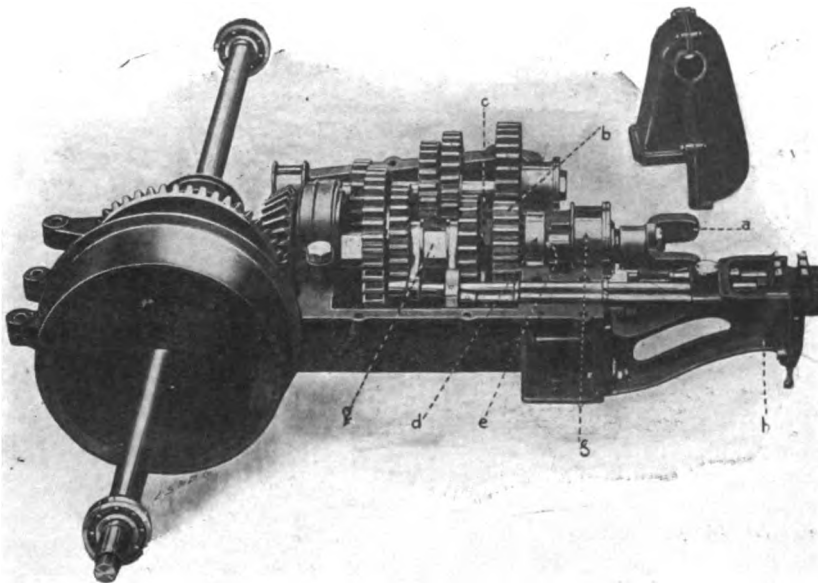
Varied Contents of a Catalogue.

In the new catalogue of the Matheson Motor Car Company, of Wilkes-Barre, Pa.,

Novelties in Steam Transmission.

One of the most taking features of the 1906 product of the F. B. Stearns Co., of Cleveland, O., is the transmission, which besides being unusually compact for so large a car, has several novel features and combines great strength with easy running. ten annular ball-bearings being required to mount both ends of each of the shafts.

As will be seen from the accompanying illustration, the general arrangement is that which has come to be regarded as standard practice—sometimes qualified by the word "continental." The lay shaft is in continuous operation, running at half the speed of the driving elements and all its parts are fixed in relation, the speed changes being obtained by manipulation of one of two



shifting sets moving on the squared driving shaft. The method of changing embodies the familiar selective principle, three shifting rods being used for the purpose, each of which is locked in position when not engaged by the shifting arm. The pair of rods seen in the foreground of the illustration actuate the sliding gears necessary to securing the forward speeds, while the third actuates the reverse idler through the medium of a pivoted lever, which causes it to mesh with the proper lay and driving gears; a point worth noting, being that a moving gear is engaged first, and the dead one picked up afterward.

One rather novel feature is the method of constructing and mounting the driving spool, or primary driving shaft, a-b, which is connected with the master clutch through the universal joint a. This is a single forging including the lay driving gear b, and the live member of the high speed clutch c. It is mounted in two ball bearings, d and f, whereby its alignment is absolutely maintained, and is recessed to receive the end of the second driving shaft g, which, instead of having a plain brass bushed bearing, as is not uncommon in this type of gear, rides in an annular bearing e similar to the oth-

ers, and placed directly under the supporting point d. In this way, the element of friction is reduced to a minimum, while at the same time perfectly rigidity of alignment and position is assured.

In general construction, it is noteworthy, that the gears themselves, which are forged from a steel capable of taking a tensile test of 220,000 pounds to the square inch, are of five pitch size, the driving bevels only, being smaller by one tooth. In addition to its massive formation, the features of complete enclosure of all working parts has been carried out by the designer, even the shifting mechanism being covered in by the casing which is shown detached.

The gear set is capable of being assembled as a unit outside the car, the ad-

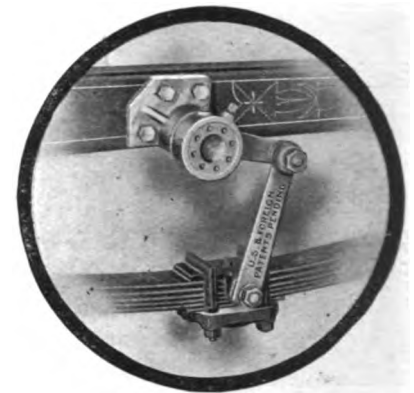
dition of this secondary casing being all that is required in its final mounting in place, aside from fixing the stay bolts. As this case simply clasps the shaft which carries the shifting element, and bears no load, the shifting bars themselves being supported at the outer end by the bracket h, which is fixed to the main casing, it is evident that there can be no difficulty with this portion of the mechanism through disalignment.

Why National Must Enlarge.

Although the National Motor Vehicle Company, of Indianapolis, Ind., have under way plans for a new factory which will afford quite as much additional working space as that which it now occupies, the rush of spring business has become so great that an immediate extension of manufacturing facilities has been found necessary. Accordingly during the last two or three weeks, all the available outside room in its vicinity has been rented in order to increase the scope of the plant. In addition to this spreading out, the shops have been running double time since the first of March, in an effort to catch up with the orders, which will keep the plant very busy.

Cushion Plan for Shock Absorption.

In the evolution of the various types of auxiliary to the suspension of the motor car which have been brought out in almost startling profusion during the last six months, two schools of design have sprung up. And while both agree in the belief that it is quite essential to the life of the car as well as to its comfortable riding qualities to check the surging action of the springs when rough spots are encountered in the road, one claims that this action should be confined simply to checking the rebound. The other, quite to the contrary, avers that as the action when a series of obstacles are encountered in rapid succession must tend to deflect the springs more and more, finally resulting in lowering the body to the plane of the axles unless some foreign resistance is offered to it, the proper method of procedure is to check the downward as well as the upward motion, thereby cush-



ioning the body from plunging in either direction.

A device which has been worked out quite successfully in accordance with the teachings of the latter school, is the Diezeman Shock-Absorber, which is being marketed by the Diezeman Shock-Absorber Company, of Hoboken, N. J. It is a development of the friction principle, and is claimed by its maker to offer a uniform resistance to the plunging of the springs which is of equal strength in either direction; and is nicely measured in accordance with the needs of the particular car to which it is applied. Moreover, it is enclosed in an air-tight and dust-proof case, the parts being packed in grease, so that there is no possibility of the entrance of any foreign matter, and, by the same token, any leakage of the contents is prevented.

The especial features claimed for its construction are; the friction surfaces consisting of bronze and steel, with fibre inserts in the shape of disks, the whole being mounted about a friction spindle which is pivotally secured to a spring holding plate upon the axle. The device itself, is affixed to the chassis, either upon the inside or the outside, matters of convenience governing the choice, and once set up and adjusted needs no further attention from the user. The joint in which the element of friction is resident, comprises a taper stud working in a fiber-bushing.

AN OPTIMIST ON FUEL

**Why he Believes there will be no Famine—
He sees no Reason for Price Advance.**

Whether as the result of the great amount that has been said and written in the past few months as to the threatened scarcity of gasoline at some time in the near future, or the fact that the head of the Standard Oil Company intends to endow another Western seat of learning cannot be said, but nevertheless, the price of the precious fluid has jumped a cent or two a gallon at wholesale within the past month. Probably the flood of predictions as to the exhaustion of the supply that have been brought forth in argument in favor of the tax free industrial alcohol, have caused the octopus to see things in a new light—gasoline must be scarce, if people think so, hence the rise. However that may be, the fact remains that there is a prevalent feeling as to an impending scarcity and there is no getting away from the recent rise in price, so that the investigations of a Russian scientist on the subject, given in *The Car*, will be of interest just at this time.

"In view of the great alarm which has been created during the past few months as to the possibilities that the supply of benzine, as I prefer to call it, may fail at any time, it is comforting to look at facts and figures in their matter of fact light and see if there is any reasonable ground for such pessimistic fears.

"I have devoted not an inconsiderable amount of time to the question of the supply of benzine, and I must at the outset admit that the fears of a spirit famine are for the most part based upon an entire ignorance of details, and are therefore quite erroneous. We all know that the motor-car, both for pleasure and business purposes, has come to stay, and consequently it is a question of the utmost importance that there should be no lack of supply in its fuel. The motor industry is extending at a remarkable rate, and every day the demand becomes greater, but I make bold to say that in spite of the views held by alarmists, the supply will always be found to more than keep pace with the demand.

"As is well known, the material used for motor-car spirit represents the lightest parts of crude petroleum, and is received as a first product upon submitting crude oil to distillation for the purpose of obtaining illuminating and other oils. The product so received is known by a variety of names—gasoline, naphtha, benzine, and so forth—but whether it is produced in America or Roumania, in Russia or Sumatra, it represents a mixture of hydrocarbons with practically the same chemical and physical properties. The benzine sold upon the English market has generally a specific gravity from 0.690 the lowest, to 0.715 the highest, some

being sold as imported into this country, and some refined after importation.

"In order to illustrate the various qualities of benzine usually to be found in the market, I give here the results of investigations made recently with a number of samples of American, Sumatra and doubly refined Sumatra spirit in order to determine their characteristics with regard to vaporization. This, of course, is very largely influenced by the temperature. In the case of the American oil, the percentages varied from 2.34 per cent. of spirit of .643 specific at temperatures up to 50 degrees centigrade, to 6.20 per cent of spirit of a specific gravity of .750 from 110 to 120 degrees centigrade, or well over the boiling point. In the case of the Sumatra oil, this gave a minimum of 3.34 per cent. by weight of spirit of .650 specific gravity at the lower temperature and 6.92 per cent. of .775 specific gravity at the higher, while with the doubly refined Sumatra this was almost doubled at the lower temperature, viz: 6 per cent by weight; the specific gravity was low, not exceeding .648, and 7.42 per cent. of .743 specific gravity at 100 to 110 degrees centigrade, and above this the percentage dropped off sharply to 3.36 per cent. of spirit of a specific gravity of .751. The amount of residue varied little in the case of the American and Sumatra, being 6.02 and 6.92 respectively, but with the double refined the Sumatra was reduced to 2.50 per cent. Where the amount of loss was concerned there was little difference, this being 3.20, 2.98 and 2.92 per cent., respectively, in the order named.

"Thus it will be seen that, although in two of the spirits their country of origin is entirely different, their boiling points and specific gravities, especially in the lower fractions, are similar, the difference being only shown in the fractions which boil above 100 degrees C., where the American benzine fractions are lighter than those in the Sumatra spirit. The same applies to benzine of a similar specific gravity from Russia and Roumania. From experiments conducted by me a few months ago, I came to the conclusion that the chief guide in estimating the suitability of benzine for motor cars is not to be found in its specific gravity, but in the range of boiling points at which the various constituents of the benzine vaporize. Naturally the higher the percentage of fractions contained in the benzine with high boiling points, the more difficult will be the formation of the explosive gases in the cylinder. If we take this as a guide to the supply of fuel for motor car purposes, then I can immediately state that the quantity of such hydrocarbons available for that purpose is absolutely unlimited. If, however, the existing prejudices are to prevail in the minds of motorists, and in the future they still cling to a spirit with a certain specific gravity as indicative of its usefulness for their cars, then, of course, certain sources of supply will have to be excluded.

"Therefore, in giving the following details of the production of crude oil in the

various countries of the world I shall indicate such crude oils which are available in case the old standard of quality from the view of specific gravity is applied, and then I shall show the sources of supply which are at the disposal of the motorist if he will only adopt as his standard the principle of judging the boiling points which are found from science and practice to be the only real standard which can be laid down.

"The world's total production of crude oil last year may be taken approximately at 26,800,000 tons, but had a normal state of affairs been ruling in Russia, then the total figures would have exceeded 30,000,000 tons. Of this quantity, some 17,000,000 tons came from America, Russia coming second with her 6,500,000 tons, instead of her average 10,000,000 tons. Sumatra, Java and Borneo collectively produced 1,200,000 tons, Galicia 800,000 tons, Roumania 600,000 tons, India 465,000 tons, and the other countries about 350,000 tons.

"Now taking America, the chief sources for the supply of crude oil for the manufacture of benzine are the fields of Pennsylvania, which include the territories of West Virginia; but we must also add to the chief benzine producing States the newly discovered fields of Kansas and Indian Territory. Practically two-thirds of America's production is from the Texas and California fields, but this oil, being of a heavy character, is unsuitable for benzine manufacturers.

"Following upon America, we have the Far Eastern fields, and although the production of crude oil is proportionately small the percentage of benzine in Sumatra oil is very high, and so we can take it at least 25 per cent. of the total crude oil production is benzine. Roumania and Galicia between them are responsible for about 150,000 tons of benzine, but in these countries developments upon a real business-like basis have only recently commenced.

"In speaking of Russia, until the present time there has only been one available source of supply, Grosny, which represents about 700,000 tons per year, and from which crude oil about 70,000 tons of benzine are obtained. Thus far, no benzine has been exported from the Baku district, where the chief production of Russian oil is centered. This has been due to the fact that the existing railway line has scarcely been sufficient for the purpose of exporting the illuminating and lubricating as well as other oils, but now the opening of the new pipe line from Baku to the port of Bautoum, will release quite a large number of tank oil wagons which have hitherto been used for the carriage of illuminating oil, and thus these will be available for transporting benzine. The crude oil of Baku consists of two classes—that from the Balachany-Romany-Saboontchi district, or about 60 per cent. of the total yield, and that from the newly developed district of Bibi Aibat. The oils from the former district contain only a small percentage of benzine, but those from Bibi Aibat are rich in the ben-

zine fractions, and from 200,000 to 300,000 tons of benzine could be exported annually. Therefore it is easy to see that even if the motorist chooses to have a benzine of a certain specific gravity, and takes no notice of the boiling points of the fractions, the world's supply is approximately 1,000,000 tons per annum, this including 300,000 tons from Pennsylvania and the Far Eastern fields respectively, 150,000 tons from Roumania and Galicia combined, and 250,000 tons from Bibi Aibat.

"But should the motorist recognize that the proper standard from which to judge the suitability of benzine is from the boiling points of the various fractions, then the supply of motor spirit can be considerably augmented. A large supply could be obtained from the fields of Borneo, and this would be found upon application to be as good as any other, while we could also add a heavy spirit from the American oils (excluding Pennsylvania) and Russian oils (excluding those from Bibi Aibat). This additional supply which I would most conservatively place at 500,000 tons, would bring the total yield up to 1,500,000 tons per annum.

"From the point of view of consumption it is very difficult to obtain accurate statistics. We do know, however, that the three great consuming countries in Europe (or I could say in the world)—Germany, France and England—consumed between them 200,000 tons for the past twelve months, Germany taking 110,000 tons, England 60,000 tons, and France 30,000 tons, and consequently at the outside the whole of Europe only consumed during 1905 about 250,000 tons of motor spirit. Compare this with the available supply, and with what could be produced if only the motorist would carefully consider the question as to the suitability of benzines, and we see how unreasonable it is to argue or in any way suggest that we are shortly to face a famine in motor spirit.

"This, I know, has mainly been brought about by the fact that quite recently the price of motor spirit advanced, and now placed at a price which does not mean continual loss all round, as was the case previously when it was in some instances more advantageous to burn the spirit upon the fields than to go to the expense of marketing it.

"If motorists really wish to obtain the spirit at a cheaper price, or to make this possible in the long run, then they would be well advised to direct their attention to fighting the absolutely unnecessary and absurd restrictions which are now placed upon the transit of the article. Famine, at all events, is out of the question."

A Garage for Churchgoers.

An automobile garage figures prominently in the plans of a new \$150,000 edifice to be erected by the congregation of the First and Second Presbyterian Churches in Cincinnati, Ohio. The new church will contain a well equipped garage for use of wealthy parishioners.

NOVEL FORM OF RADIATOR

A Device Which Draws Heat from Circulating Water Through Sealed Pipe.

What appears to be the most novel form of radiator ever used in connection with the automobile motor, is to be installed on a new line of English gasoline 'busses—the Critchley-Norris, that are just making their debut on the other side. It is composed of a central tank into which hot

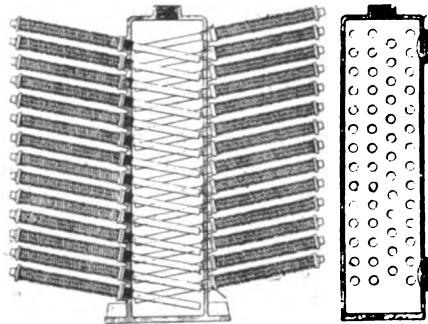


FIG. 1.

water discharges and from the lower part of which it re-enters the circulating system. Extending from this tank on both sides and tilting upward at a slight angle are two banks of tubes the inner ends of which project clear across the interior of the tank as will be plain from the accompanying sectional sketch of the complete radiator. These tubes, each of which is an independent unit, are hermetically sealed at both

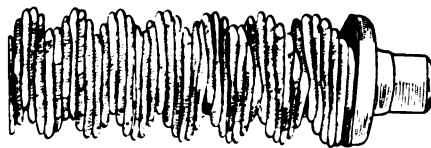


FIG. 2.

ends and contain nothing but a small quantity of alcohol and a little rarified air, as the tube is exhausted to a certain degree by means of a vacuum pump after the alcohol has been introduced.

Their outwardly projecting ends are fitted with coils of tubing of small bore for dissipating the heat rapidly to the atmosphere, and the alcohol serves the purpose of very quickly transmitting the heat from the circulating water to the tubes. The latter are termed "kitchen" tubes and a better idea of their construction may be had from the detailed sketch showing the manner of coiling the small tubing around its foundation.

In Case of Fire on the Car.

Although where a due amount of caution in the handling of naked flame is exercised, there is very little danger of fire occurring in motor cars, still there is always a slight element of risk, and on this account all heavy touring cars such as are provided

with elaborate bodies might well be provided with small portable extinguishers such as might be used with good effect on the upper structure. In case of fire in the carburetter, the gasoline supply tap should be closed at once. When this has been done, the entire contents of the float chamber may be consumed without doing any damage at all, provided that the adjacent portions of the machine are kept from igniting, which is not difficult in many cases. If the use of sand, a leather gauntlet or woolen rug fails to extinguish the flames, or in case the supply cannot be cut off, the best method of procedure is to run, and run fast.

Liquidated the "Wash Account."

"It seems to be the pleasure and delight of many owners—wealthy owners, of course—to get 'chesty' about the large sums of money the car is costing and the various improvements that have been made since its purchase," remarked an upper Broadway garage man, the other day. "Sometimes, however, you run across one who does object. The other day two or three owners were in here waiting for their cars to be rubbed dry after a bath, when one said he didn't object seriously to the first cost, but he does hate to be paying out a dollar here, two dollars there and sometimes thrice that amount somewhere else. 'Every time I come into this place,' he remarked, 'it costs me something, but this one time I shall get out without a cent, for my car does not need any fixing.' Before he left the garage, however, he went to the sink and proceeded to wash his hands, and as he was leaving the floorman asked if he had used any soap in performing the ablution. 'What difference does that make?' he asked in surprise. 'Well,' said the man who kept the books, 'I did not know whether to charge you with just one plain wash or an extra one.' After the laughter had subsided the owner took all hands to the nearest corner and wiped the 'wash account' off the books with the contents of several bottles."

Fay Heads Altoona's Club.

Altoona, Pa., now has an automobile club, which is officially designated as the Blair County Automobile Club, formation taking place last week with twenty-five charter members. These officers were elected: President, R. H. Fay; secretary, L. C. Wolfe; treasurer, Dr. O. H. Schaeffer; trustees, J. Emory Shute, Frank Creamer and George Rudisill.

Chauffeurs' Club Adopts Wage Scale.

Although at the time of its organization it was succinctly stated that the New York Professional Chauffeurs' Club would not be a labor organization, such seems to be not the case. The local organization gave out last week that it had fixed on a minimum wage scale of \$25 a week for its members.

NATURAL WOOD FINISH

How the Best Effects May be Secured in this Style of Body.

"Indications as observed at the automobile shows point to the fact that natural wood finished vehicles are attaining no inconsiderable measure of popularity," says Carriage Monthly. "The general effect was especially cosy and inviting, even in a mid-winter display, where color schemes were subject to all sorts of variations as a means of impressing observers. Of course, the fundamental necessity in natural wood finish is getting the grain under permanent subjection; first, by complete and thorough filling of the wood with a mineral paste filler, and second, coating upon this filled surface with a foundation of varnish strong and solid enough to hold the face of the wood in a fixed position.

"The chief failure in this sort of a finish is, first of all, a failure to properly fill the wood. The application of wood filler and the wiping of it from the surface is not a sure promise of a rightly started job, for the filling may prove a rank failure once the varnish is in place to photograph the imperfections of the wood structure. The amount of filling must be determined by the grain and general cell structure of the wood. Some woods with an unusually close, compactly knit cell and grain structure will fill up completely at one filling, or one application of the filler, whereas another piece or number of pieces, require two applications of filler. Admittedly much depends upon the skill of the workman, and his dexterity as a mixer of the filler, and upon his judgment and discretion, but, upon the whole, the proposition holds good that the amount of filling required depends very largely upon the grain and cell structure of the wood.

"Most of the latter day filling is done with a paste filler with a mineral base, because it is known that a mineral filler is indestructible, both in its physical composition and in its power for retaining its first or original transparent property, which property, let us note in passing, is the supreme virtue, among many, that makes a mineral filler the first choice in modern wood filling practices.

"The corn starch and other soft fillers, popular years ago, and still, no doubt, used to some extent by vehicle painters unacquainted with the latest developments in the wood finisher's art, are possessed of the disadvantage of changing color as time goes on, and of shrinking, the latter fault giving the finish an impoverished appearance. Such conditions were commonly met with upon surfaces filled with corn starch, and they were seldom, if ever, remedied, short of scraping the finish entirely off, sand-papering the surface down close and deep, and then refilling and refinishing.

"The mineral filler to-day recognized

among expert finishers as superior to all others is that form of silex which permits grinding into the finest kind of needle-shaped fragments. In making a filler it is important to consider that only enough pure refined raw linseed oil should be used to furnish the material with a proper binder. In other words, a minimum of oil consistent with the necessary binding properties of the pigment is a prime desideratum, and for this reason: Oil darkens with age, and in case of moderately light woods this darkening process would result in clouding and staining the finish.

"Probably the formula that meets with greatest favor consists of ground silex, any quantity, and one part each of refined raw linseed oil bleached, pale drying japan, and turpentine. Add in these proportions to the silex to the extent of producing a stiff paste, which should then be run through the shop mill to obtain a smooth, fine mixture of all the ingredients.

"A good, workable filler should set in about 20 minutes, and when in condition to 'rub off,' it will have a dull, whitening-like appearance, with a decidedly flat look that is unmistakable. The best rubbing-off material is flax or hemp tow, this material being soft and not given to tearing the filler out of the grain of the wood, as does excelsior, and some other coarse substances sometimes used for the purpose. Failure to obtain a good job of filling is often due to the workman's haste to rub the filler off the surface. The filler in a wet condition rubs off easier, and at a less expenditure of time and muscle, but it fills the wood very little.

"In the operations between the wood filling and the finish there are many delicate questions to be taken into account and held in due respect. Cleanliness of the hands and of the person, cleanliness of the coatings, discoloration by the repeated coatings of varnish, etc. And in case of automobile bodies there are the large surfaces to be worked over repeatedly, and still maintained in a perfectly natural and unclouded condition.

"The finish upon such work represents, at the least, four coats of varnish—three coats of rubbing and one of finishing varnish. The striping upon natural wood finish for auto work may be done very effectively with two and three lines of red or of aluminum, the latter being quite a favorite in some quarters. But whatever the color chosen, accuracy of lines is insisted upon by connoisseurs."

Philadelphia Plans a Motor Car Line.

That Philadelphia will, by next autumn, have on Broad and on Diamond streets, a service of electric automobiles that will compare favorably with similar service in any city, is promised by the plans of the Auto Transit Company, of Philadelphia, which has just paid into the city treasury \$4,000 for the right to run one year its first complement of twenty vehicles. The company started one vehicle on a test last year as a sightseeing coach and as it covered

over 3,000 miles of city streets without one cent's outlay for repairs, the officials are sanguine of success in undertaking opposition to the trolley lines. The motto of "No seat, no fare," must be maintained as each vehicle contains seating capacity for thirty persons, and there is no room for standing. The coaches are roomy, yet compact, designed to serve the public want, not only from a viewpoint of necessity, but also of comfort and luxury.

Directory of the Automobile.

On glancing over the pages of Krausz's practical Automobile Dictionary, the reader is quite likely to exclaim that it is just what he has been looking for. Since its contents include those terms which are most likely to be met in glancing over foreign motoring publications, and which are invariably used in conversations either in French, German, or English, where the automobile is under discussion. Besides these, are included pages of information of particular interest to tourists, comprising the frontier regulations for foreign automobile travel, in many different lands, a list of the American Consulates in Europe, a scale of the foreign cable rates from New York, and a series of comparative tables showing the relation of the Metric and English systems of weights and measures. The edition is pocket size, measuring 4¼ by 6 inches, comprises 125 pages from cover to cover, and is nicely printed and bound in cloth by Frederic A. Stokes Company, New York.

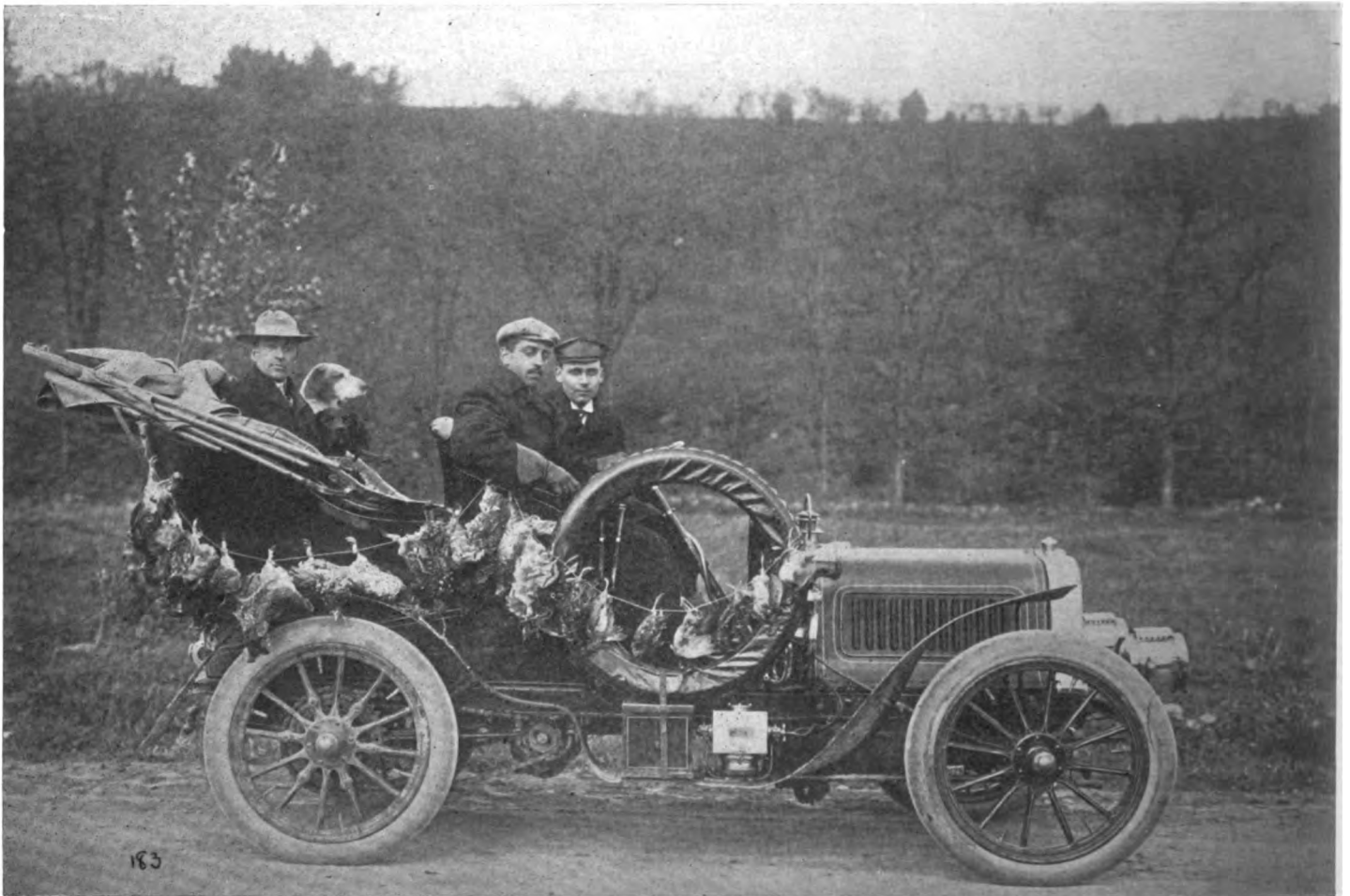
Motor Car for Canadian Police.

Canada is reputed to have the most effective body of guardians of the law known to the world, in the shape of the Northwest Mounted Police, who patrol the vast stretches of wild country north and west of Winnipeg. They are evidently determined to maintain their prestige for a new Winton Model K has just been acquired from the Winnipeg agent, to replace some of the horses. The only Winton to be had in the whole northwest was the sample car in the possession of the Dominion Automobile Co., in Winnipeg, and as the latter city is a long way from Cleveland, the agent considered it the better part of discretion to hold on to his demonstrating car, but the police department was equally determined to have the car and finally made such an alluring offer that it was not long in changing owners.

Resort to Automobiles.

Failing in their attempts to secure a trolley line in Rahway avenue between the cities of Rahway and Elizabeth, N. J., a company of citizens living along that street have organized a company that will be incorporated to operate an electric or gasoline omnibus line between the Elizabeth depot and the depot in Rahway and from there to Carteret. The promoters of the company are George Bauer and John Wynans, who are interested in other transportation lines.

Hunting Party Returning After a Day of Successful Sport.



There are a few things in which the automobile has proved of greater value than as an aid to the sportsman. It provides the means of reaching distant hunting grounds and returning the same day with a maxi-

mum of comfort, and throws open to the man whose time for such pastimes is limited, an opportunity to reach fields that would otherwise be closed to him. How successful and enjoyable such a trip can be

made is strikingly evidenced by the accompanying photograph of a Pope-Toledo hunting party and their spoils. The sportsmen betray no evidence of having had an arduous day.

Leavitt's Stair-Climbing Stunt.

Hill climbing is the crucial test of any car's powers and the Reo touring car having mastered every other bump in that city of hills—San Francisco, which is famed for the steepness of its grades, J. W. Leavitt, who handles the Reo line at the Golden Gate, felt confident that there was nothing in the way of a climb that the car could not mount and accordingly set about proving it by undertaking the now time-honored stair-climbing stunt. The flight leading from Fulton street to Alamo Square was selected as the scene of operations and with G. B. Woodward at the wheel, one of the Leavitt selling forces, the car tackled the forty steps that are reputed to rise at an angle equivalent to a 35 percent grade. The first half of the flight proving no obstacle whatever to the progress, the driver gained confidence and made the last half faster. But the return trip proved more of a sensation for the spectators than did the ascent. Turning the car around at the top the descent was undertaken without a mo-

ment's delay and although a judicious use of the brakes kept the car from "shooting the chutes" or taking the forty steps at a bound, the down trip was made in a fraction of the time required to run up the grade. Neither the Reo nor its driver were any worse for wear after the performance and Mr. Leavitt is now of the opinion that nothing short of a tree represents the limit of its climbing powers.

The Latest Automobile Romance.

"Foundlingism" is a word coined abroad to represent the latest crime to be laid at the door of the automobile. It has been accused of increasing the tobacco chewing habit, spreading the brown tail moth, figuring in elopements and the divorce court, aiding smugglers and burglars and—the list may be continued indefinitely. The occurrence upon which this latest accusation is founded hails from a little town in Germany. A car drove up to the door of the principal hotel and the driver entered carrying a basket. After having absorbed the

desired refreshments, he hurriedly left and drove off at top speed. The presence of the basket was observed at just about the same time and the landlord rushed out to inform the motorist of his oversight, but his only reward was a swiftly vanishing cloud of dust. The "oversight" was a girl baby with \$2,000 in banknotes pinned to its clothing together with an unsigned letter promising a similar amount two years later. The newcomer and her roll was turned over to a gamekeeper to whom one more or less did not make a great difference.

Herreshoff Designs a Wind Shield.

John B. Herreshoff, of Bristol, R. I., best known as the designer of racing yachts, has applied a feature of steamboat construction to the automobile, in the form of a curved glass wind shield resembling a pilot house window. In addition to providing a surface that presents a great deal less resistance to the wind, the curved form is said to afford much better protection than the ordinary flat sheet of glass.

MOTOR RATING BY FORMULA

Dugald Clerk Points out a Fallacy—How Variables Affect the Problem.

In view of the spreading belief that rating cars by the cylinder capacity of their motors will prove to be the means of accurately classifying machines in contests, a paper by Dugald Clerk—the dean of authorities on the internal combustion engine, read before the Automobile Club of Great Britain recently is extremely interesting. He points out the fallacy of such a condition and shows why it is impossible to rely upon any one factor in determining the capacity of an engine.

"The rating of an engine's power by means of cylinder dimensions is no new problem," said Mr. Clerk. "It arose immediately upon the perfection of the steam engine by James Watt, and it produced a series of more or less divergent rules, beginning about the end of the eighteenth century and terminating some twenty years ago. These rules were all intended to give the power of a steam engine directly from the cylinder dimensions. The power given by rule was long known as the nominal power of the engine, and steam engines used to be sold as so many horsepower nominal, capable or working up to some fabulous power, generally three times, and sometimes six times, the nominal power. In Bourne on the Steam Engine, in the 1872 edition, I find the rule given for nominal power of a low pressure engine of James Watt construction:— 'Rule: Multiply the square of the diameter of the cylinder in inches by the cube root of the stroke in feet, and divide the product by 47. The quotient is the nominal horsepower of the engine.' Bourne informs us that the assumed pressure in computing nominal power of the low pressure engine is 7 lb. on the square inch, and that the piston speed varies with the length of the stroke from 160 feet to 256 feet per minute, 160 feet a minute being common with a 2 foot stroke, and 256 feet a minute with an 8 foot stroke. Two rules were given; one was in use for low pressure engines and another for high pressure. For the high pressure rule 21 pounds per square inch upon the piston was the accepted figure.

"No doubt in the early days of the steam engine these rules gave close approximation to the actual power of the engine; but the progress of experience and invention so greatly changed the conditions that before the practically final disappearance of the term 'nominal,' the power of the engine, as I have said, was generally three times the nominal, and sometimes six. This conception of nominal horsepower was a great annoyance for many years to the engineering world. It introduced an artificial term which had no relationship with actuality, and the matters were further confused when indicated horsepower and brake horsepower began to be used, as well as nominal horse-

power. I hope that in the case of the internal combustion motor no rigid rules may be formulated, tending to impede progress, and prevent engine designers varying proportions and dimensions of their engines in any way which they may think best adapted to secure improved results. Personally, I fear it is impossible to devise a rating rule which will enable one to accurately estimate the power of any engine from cylinder dimensions only. To obtain any such accurate rule would require uniformity of mean pressures, cylinder proportions, piston speeds, and engine revolutions, which would only tend, in my view, to impede progress rather than assist it.

"In order to consider the matter with you I have had certain tests made—some by my partner, Mr. Adam, some by myself—by the Wolseley Company and by the Daimler Company. From these various tests I have prepared a table which gives results from ten gasoline engines and one three-cylinder gas engine. For the sake of completeness I have included in these particulars the results stated by Dr. Watson in his recent paper here. His engine, however, may be taken as experimental, as the piston speed is much lower than that usually adopted by makers for the market. I have arranged mean pressure under two columns. In the one case the mean pressure given is the exact equivalent of the brake horsepower, without any allowance for friction; that is, it is that proportion of the mean pressure upon the piston which is really delivered from the engine in brake horsepower. The second and mean pressure column gives the mean pressure upon the piston, assuming the mechanical efficiency of each engine to be .8. The last column gives the piston speed. The power and cylinder dimension columns are self-explanatory. It will be observed that the cylinder dimensions in the gasoline engines vary from 3½ inches diameter by 4 inch stroke as the minimum to 7¼ inch diameter by 6 inch stroke; and that the mean pressure equivalent to brake horsepower varies from 61 as the minimum to 81 as the maximum. The highest mean pressure actually exerted on the piston is 101.5 lb. per square inch, and the lowest 76.4. With pressures varying so much as this it is obvious that no rule could be given depending on cylinder dimensions only, which would estimate even with approximate accuracy, the power to be given by two engines. Two engines of exactly the same cylinder dimensions, with this variation in mean pressure, would vary as much as 25 per cent. in rated power. Judging, however, from these numbers, it appears to me that it would be very near the truth to say that a gasoline engine of first-class construction should give a brake equivalent of about 70 lb. per square inch mean pressure upon the piston.

Looking now at piston speeds, the engines from 6 horsepower to 15 horsepower, excepting Dr. Watson's experimental engine, vary from 750 feet to 800 feet piston speed per minute. It might then be con-

sidered with some justice that the piston speed of a good engine varying from 6 horsepower to 15 horsepower could be taken at 800 feet per minute. The piston speed of the more powerful engines appears to vary more; from the 28 horsepower Humber to 60 horsepower Mercedes it varies from 862.5 to 1,350 feet. A piston speed, however, of 1,000 feet per minute appears to be very near the mark for all engines except racers. From these tests I would suggest that for all petrol engines power might be calculated on the assumption of a brake equivalent of 70 pounds per square inch on the area of the cylinder, and for engines up to 12 horsepower piston speed 800 feet per minute, and over 12 horsepower 1,000 feet piston speed per minute. A rule based on these assumptions would be of the form

$$\frac{D^2 \times N}{C}$$

where D is the diameter, N is the number of cylinders, and C is a constant. The constant will be different for engines up to 12 horsepower and engines above 12 horsepower. It is true that such a formula is not really what one would call scientific, because it takes no note of the fact that higher piston speeds can be attained with longer than with short strokes. Mr. Remington, of the Wolseley Company, has proposed a formula at Birmingham, which is

$$\frac{D^2 \cdot S \cdot N}{C}$$

where D is diameter, S is stroke, N number of cylinders, and C. a constant. This formula takes account of the fact that, from various causes, possible piston speed does not increase with longer stroke. Curiously enough, this formula is exactly that given by Bourne in 1872 as used for low-pressure engines of Watt's type.

"It would, it is true, be more satisfactory, and certainly more scientific, if one could suggest a formula which would include all the main factors determining power. Unfortunately, but little is as yet known as to some of these factors. Take, for example, the question of mean pressure. This depends—

"(1) Upon ratio of compression in the cylinder;

"(2) Upon flame temperature of the mixture;

"(3) Upon temperature of the charge before compression;

"(4) Upon cooling surface and configuration of the cooling surface; and

"(5) Upon the time of exposure.

"All these things vary in every engine. The effect of some of the factors is well known; others are by no means understood. The law of the change of mean pressure with the compression is accurately known. The change is proportional to the change of efficiency, and this has been determined with some accuracy by a Committee of the Institution of Civil Engineers on the Thermodynamic Standard for Internal Combustion Motors. Although the

change of mean pressure with increasing compression can be accurately calculated, yet this does not exhaust the matter. The question of pre-ignition comes in, and makes it in many cases impossible to predict what will occur in the absence of direct experiment. The question of flame temperature also is pretty well understood, and it is known that too rich a mixture with too high a flame temperature tends to produce loss of economy and trouble in running. The question of charge weight is also understood, both from a mechanical point of view, requiring large and free inlet valve areas, and from the physical point of view, of heating the mixtures during entering. The exact effect, however, of surface and the shape of the surface is very little understood, although the time element can be accurately calculated. From this it will be seen that the question of mean pressure alone is a very complex one, so complex that experiment is the only safe guide.

"With regard to the other important factor of power, that is, piston speed; broadly, the conditions arising with increased piston speeds are clearly understood. The limit comes from undue inertia strains. In many large gas engines the work of pulling up the piston at the end of each stroke produces pressures on the crank pin almost as high as the explosion itself. It is difficult to predict any limit to piston speed with reasonable accuracy, because it depends so much upon weight of reciprocating parts, strength of material used, length of stroke, and so on. Altogether, it seems to me hopeless to expect to get any really accurate formula in our present state of knowledge. It is quite possible, however, to obtain more accurate information than we have at present. It must be borne in mind that mean pressures vary very much, but that 70 pounds per square inch on the piston, as brake equivalent is not far out from the ordinary result. The brake power at which many engines are rated seems to vary within wide limits, partly, I think, because many makers are content with a few minutes' run upon the brake at full load. I would suggest that all full load brake tests be made for at least five hours, with the water leaving the cylinders at a temperature of not less than 70 degrees C., and that the full brake load be given as the power to be gotten from the engine under these conditions. A few minutes' brake test is very misleading."

Where the Horse Gave Way.

"Jim Key has come and gone and the next great attraction at the auditorium will be the automobile show," says an Omaha paper. Jim happens to be an equine of unusual intelligence that has been behind the footlights for a number of years. It is literally a case of the horse giving away to the automobile in this instance.

Scranton (Pa.) motorists are complaining because the small boys are stealing tags off cars.

AN AUXILIARY AIR DEVICE

The Piston Superseded by a Spring Arrangement in a New Carburetter.

Ever since the principle of providing additional air for the carburetter as the demands of the motor varied, has become firmly established, the majority, if not all,

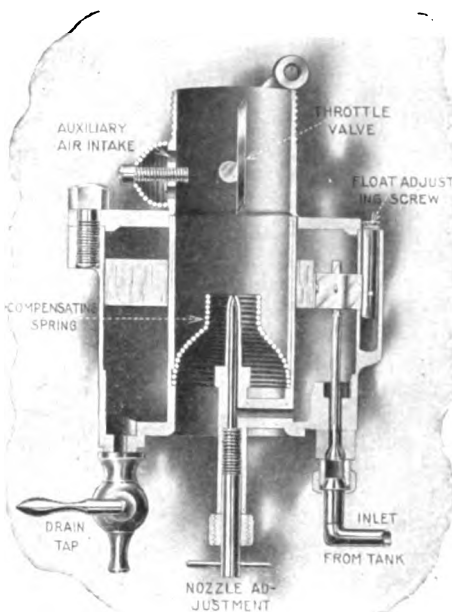


FIG. 1.

of the compensating devices created to accomplish this purpose, have taken the form of a piston or similar device actuated by the vacuum set up in the mixing chamber through the effect of the increased suction of the engine at high speeds. This is the



FIG. 2.

case to such an extent that the piston type of auxiliary air device has practically become an established practice, particularly abroad. A distinct departure from this form has, however, been made by an American, Charles T. Gaither, of Youngstown, O., and the carburetter invented by the latter is now being placed on the market by the Gaither Owen Co., 138 West 38th street, New York.

From the accompanying sectional elevation of the carburetter it will be noted that

the latter is of the concentric float type, air being admitted at a central opening directly beneath the spray. So far as the float chamber and the spray nozzle are concerned, current practice has been followed, but surrounding the nozzle will be seen a coiled spring of peculiar form, the latter being shown more clearly in the separate illustration. The large end of this spring completely fills the bottom of the mixing chamber to which it is attached, while the small end is on a level with the outlet of the nozzle. Each turn of the coil sets closely against its neighbor, so that normally no air can pass through the spring except at the small outlet at its upper end. The coil is slightly less than two inches in diameter at the base and the upper opening is a little more than half an inch, experiment having demonstrated this form to be the most effective. The wire itself is of steel, copper plated to prevent corrosion and is about 1-16 of an inch in diameter.

The size of the upper opening has been calculated to supply the engine at normal speeds and when the latter are exceeded, the greater suction set up causes a partial vacuum above the spring with a consequently increased atmospheric pressure beneath it. This causes the different windings of the spring to separate and allow air to pass between them, and it will be apparent that a very slight stretching of the spring in the manner outlined will provide a comparatively large amount of extra air owing to the great area of the opening that results when all of the coils separate. This secures an automatic compensating action without the employment of any moving parts in the sense of one part sliding on another as is customary and is claimed by the makers to be positive and effective.

As will be noted at the upper left hand side of the mixing chamber an auxiliary air device on the same principle is provided. The needle valve controlling the fuel supply is adjusted in the usual manner while the float controlling screw permits of raising or lowering the level of the gasoline at the mouth of the nozzle. The throttle is a simple disk as shown.

Sand and Blankets to Subdue Fire.

Whenever there is necessity of handling or storing any highly inflammable liquid such as gasoline, there is always a fire risk, no matter how carefully guarded the containers and method of use may be. Obviously, since this is the case, the means taken to prevent conflagrations should be extended as well as a means of limiting their speed, once they have started. To this end, every garage should be provided with several pails of dry sand, conveniently located, as well as an equipment of chemical extinguishers, and where possible, several heavy blankets such as are made for horse clothing, should be hung upon the walls where they can be caught up and spread over burning objects, to smother the flames. Means should also be at hand to thoroughly wet them when in use.

FEEDING POPULAR INTEREST

What Publicity Affects and how its Effectiveness may be Increased.

Apparently there is absolutely no limit to the scope and variety of method taken by the successful advertising man. New ideas in the advertising line are constantly being brought forth and followed out or past up as the case may be with kaleidoscopic variety. The science, as such has been characterized most astutely as the true business lever, but just as any lever loses its advantage of position and grip if the properly required amount of pressure is not brought to bear upon it at the right time, and all the time until its object has been accomplished, even so the wisely cast advertising method must be followed up, or it fails of its purpose and goes down on the debit side of the account. Moreover, just as it requires a great many blows delivered by a hammer to complete the forging of another such implement, so the tool which is to be used in welding public opinion into such shape that it will yield to the opportunities held out to it by the maker and the dealer must be wrought out by a process similar in its persistency, which is best handled from the vantage point of the trade press.

Hence, the persistent reiteration of the principles and merits of consistent and persistent advertising, in the columns of the weekly organs of the industry. Says a writer in the *Bicycling News and Motor Review*:

"Reviewing these things from an unbiased standpoint, we are bound to conclude that persistent and broadcast advertising is the very water without which the tree of life cannot bear much fruit. And it should be done, not to the trade only, but to the public as well; for doubtless it will be obvious to all wideawake persons that there are thousands of people who have already decided to purchase a bicycle, but have not yet decided, have not even the least idea what particular machine to have, but are tasting about and reading up everything they come across relating to cycles.

* * * * *

"If my observation is clear, I believe here are some manufacturers who place too much confidence in a name that has been made some ten to twenty years ago. A good name is one of the brightest lights of prosperity that any firm can possibly have, but however good it may be, or has been, it is much easier lost than gained, and therefore ought to be backed up by quality in every machine that bears it, and, above all, 'well advertised,' as this is doubtless the very best fuel to keep its light still shining, otherwise it will most certainly become dim, and finally burn itself out altogether. Its value having then reached its lowest point, it is often sold for a mere

trifle, it may be to honest men, but most likely to a lot of speculative rogues, who in their lust for gain make a counterfeit and pass it off as the genuine article, deceiving those both inside and outside the house so cleverly that one is brought to doubt whether or not there is really anything in a name, and thus the really good becomes singed by the superficial influence of the bad, to the great and lasting disadvantage of a struggling and honest industry. Thus we get another good reason why the genuinely good makers should more broadly and loudly blow their trumpets, until they almost make a person feel he is on a good bicycle, when, in fact, he is simply reading about it. Do not sit quietly in your arm-chair trying to make yourself think the agent is the cause because you are not selling enough machines. There has always been too much of this. Create a demand, both by advertising and quality; for it must be admitted that it is the manufacturer's right and place to do this, and the agent's place to sell that for which there is a demand, for it must be recognized that an agent, if he knows his business, buys on the very same principle as the manufacturer himself, namely, that which is best value for money. Unsaleable goods are as useless to him as bad material is to the manufacturer. If goods he buys turn out faulty, his business suffers in consequence, thus leaving him no alternative but to cut the makers or lost his trade. This is no idle talk, for the writer himself, through faulty material supplied, has been obliged to withdraw his support from several prominent and well-known firms in the trade. These people are generally the loudest in their cry and they cannot get proper representation, when the real facts are that they are slowly but surely committing suicide.

"One good and up-to-date form of advertising that I believe would pay good makers to adopt, would be to have some good matter composed, and either sung or spoken on to some records and supplied with every machine sold, or otherwise a few supplied each agent, to be used only in his depot, where a phonograph might be kept. This plan would not only work well for the time being, but it would act as a better lever still for the year following, because thousands of people would hear the records during the following winter and coming spring. One thing about this is, that it would not be wasted, as the articles would be useful, amusing, inexpensive and lasting. The greatest responsibility regarding results would rest on the composition, but in any case it could be made one of the best and most up-to-date advertisements of the present age."

Charleston's Up-to-Date Fire Fighters.

One of the first of the Olds two-cycle cars to reach the South will enter the employ of the Charleston, S. C., fire department. It will be equipped with two Babcock fire extinguishers and will be used by the chief of the department.

WHY JAPAN HAS FEW CARS

A Trio of Curious Reasons, all Centering on Governmental Disapproval.

"Lack of governmental co-operation is one of the chief reasons why automobiles are not coming into popular favor more rapidly in Japan," said Mr. Andrews, senior partner of the firm of Andrew & George, of Yokohama, who is now in this country on his periodical buying trip. "Further than that, I might add that the Japanese government is discouraging the introduction of the mechanically propelled vehicle, and the reason for its so doing are several."

"In the first place the roads of Japan are poor and narrow. They were built only wide enough to allow the passage of two jinrikishas, which is the popular or at least the national vehicle of that country. The jinrikisha is a light two-wheeled carriage, and has been used since the first political revolution in 1868, so it is not an easy matter to supplant them with motor vehicles. Though as far as traditions and customs are concerned I think the almost universal use of automobiles could be accomplished were it not for the abominably narrow roads. The highways were built for jinrikishas and would only be wide enough for one automobile. Complications immediately would arise should one car meet another going in the opposite direction. Nearly all the roads would have to be reconstructed before the automobile became a popularized method of travel and this would entail an expense which the Japanese government is not yet ready to bear.

"Then, too, the bridges, of which there are many, are not strong enough to bear the weight of an automobile. When they were built automobiles were almost unheard of and to put up substantial bridges would necessitate considerable additional expense.

"In Japan," laughingly continued Mr. Andrews, "the question of race suicide is not causing the potentates to lose any sleep. In fact, there are almost, it seems, a million children to every family and their playground has been, is now, and seems always destined to be the street. The government opines that if automobiles become prevalent one-half of the kingdom will become depopulated. Be that as it may, I think that Japan will in time remove the existing barriers and by official recognition and use give an impetus to the use of motor vehicles in that country."

Date Fixed for New Orleans Show.

New Orleans, La., will have its first automobile show in May, the week of May 14-19 inclusive, having been fixed as the date. The exhibition will be held in Auditorium Hall. Major W. Stewart, 50 West 37th street, New York City, is arranging details.

The Week's Patents.

816,396. Bearing-Spring for Motor-Vehicles. Thomas G. Stevens, Greenhithe, England. Filed Dec. 17, 1904. Serial No. 237,306.

Claim.—1. In a motor-car, a spring supporting-frame interposed between the car-body and axle, comprising toggle levers or links connected to the car-frame and to the axle, helical springs connected at their outer ends to the central pivots or middle joints of the toggles, and means connected with the inner ends of the springs to elongate the springs on either side of the vehicle separately, substantially as described.

816,401. Change-Speed Gear. Josef Thannheimer, Detroit, Mich., assignor of one-half to John Anderson, Detroit, Mich. Filed Sept. 18, 1905. Serial No. 278,888.

Claim.—1. In a change-speed gear, in combination with a plurality of parallel shafts, disks carried thereby and in the same plane, gears carried by said shafts, a driven shaft, gears mounted thereupon and adapted to be actuated by the gears on both of said first-mentioned shafts, and friction-wheels in contact with each side of said disks, substantially as described.

816,464. Engine. William Heckert, Findlay, Ohio, assignor of one-half to Henry W. Seny, Toledo, Ohio. Filed Oct. 4, 1904. Serial No. 227,168.

Claim.—1. An engine comprising, in combination, a plurality of longitudinally-arranged cylinders whose working pistons are impelled in opposite directions by action of combustible gas on one side and steam on the other side, means controlling the admission, ignition and exhaust of gas for the proper times for the different pistons, a water-chamber surrounding the cylinders and having a surmounting steam-dome, and a valve working in said steam-chest controlling the admission and exhaust of steam at the proper times for the different cylinders.

814,472. Sparking Ignition Mechanism. John F. Johnson, Chester, Pa. Filed Oct. 19, 1904. Serial No. 229,134.

Claim.—In ignition mechanism with an engine, of a sparker, induction apparatus having a secondary circuit including the sparker, a source of electrical energy having a primary circuit that includes said induction apparatus, a switch for the secondary circuit including an element alternately movable in reverse directions, a switch for the primary circuit including an element alternately movable in reverse directions, a device for operating the switches to successively close the secondary and primary switches in the order named and open the same in reverse order, and an eccentric driven by the engine to effect the necessary movements of said device.

816,477. Carbureter. George W. Kellogg, Rochester, N. Y. Filed Feb. 3, 1905. Serial No. 243,690.

Claim.—1. In combination a main casing having air-inlet ports, a fuel-supply pipe, a fuel-regulating valve, the valve-casing having a fuel-admission port regulable by said valve, a fuel-distributing cup-valve having lateral ports to communicate with said admission-port, and an air-distributor having a plurality of perforations and situated between the air and fuel inlets and extending above and below the ports of said fuel-distributing cup-valve, whereby the fuel is distributed in the midst of distributor air.

816,549. Gas Engine. William Heckert, Findlay, Ohio, assignor of one-half to Henry W. Seny, Toledo, Ohio. Original

application filed June 13, 1902, Serial No. 111,537. Divided and this application filed May 18, 1903. Serial No. 157,608.

Claim.—1. In a gas-engine, the combination with the cylinder and its working piston, of the hollow cylinder-head constituting an annular generating-chamber adjacent immediately to and encircled by the explosion chamber of the cylinder, means for introducing oil or explosive-rendering material into said generating-chamber, a mixing-chamber on the cylinder head having a port for admitting gas thereinto from said generating-chamber and having communication with an air-supply, a distinct passage leading from said mixing-chamber through the generating-chamber into the explosion-chamber, and a valve controlling admission of explosive mixture to said passage adapted to open on the suction-stroke of the piston.

816,620. Automobile Turn-Table. Edward A. Turner, Chicago, Ill. Filed Aug. 7, 1905. Serial No. 272,960.

Claim.—1. A turn-table for automobiles and the like comprising a rotatable water-shedding wash-platform with a pit adapted to receive and collect such water, a discharge connection leading from the pit and suitable devices on which the table is mounted above and in association with the pit.

816,639. Speedometer. James H. Bullard, Springfield, Mass. Filed Dec. 30, 1904. Serial No. 239,001.

Claim.—1. In an instrument of the class described, the combination with a suitable power mechanism, of a record-disk rotating continuously at minute-hand speed and receiving during its rotation the record of successive occurrences, and a time-dial having a partial rotary movement at periods, said time-dial being arranged in complementary relation to the record-disk on the same side or face of the instrument.

816,666. Wheel for Automobile. Charles B. Kimball, Cleveland, Ohio. Filed Mar. 13, 1905. Serial No. 249,716.

Claim.—1. A wheel provided with tubular spokes and a fixed rim about the outer ends of said spokes having right-angled sides, in combination with a time consisting of a series of separate segments confined within the sides of said rim and provided with stems mounted in said spokes and laterally-projecting portions along their sides overlapped and engaged by said rims.

816,687. Pneumatic or Elastic Spring for Vehicles. William H. Staats, Cohoes, N. Y. Filed Sept. 28, 1905. Serial No. 280,493.

Claim.—1. A pneumatic vehicle-spring, comprising a cup mounted on the vehicle-axle, a relatively movable cap surmounting said cup, a hanger, two inwardly-channelled, elongated collars encircling said axle, one at each side of said cup, and disposed between and formed integrally with opposite sides of said cap and the ends of said hanger respectively, packing arranged in the channels in said collars and a cushion arranged between and compressed by said cup and cap.

816,696. Mechanism for Vehicle Lanterns. William B. White, Cleveland, Ohio. Filed February 27, 1904. Serial No. 195,649.

Claim.—1. The combination of vehicle-wheels, manually-operated means for changing the angularity of the same, a lantern-bracket connected with said means, a support for said bracket carried by the vehicle-body and fixed relatively to the same, said bracket embracing said support on two sides and connected to the same by a pivotal bolt, whereby the angularity of

said wheels and said bracket may be varied concurrently.

816,798. Roller-Bearing. William Houldsworth, Manchester, England. Filed Mar. 7, 1905. Serial No. 248,819.

Claim.—1. A roller-bearing for shafts or axles consisting of a ring or sleeve for the shaft or axle, an outer shell or larger diameter, a ring of rollers arranged in the space between such sleeve and shell which form the roller-race, a portion of the rollers passing loosely through the washers, collars on such projecting rollers bearing against the washers and by means of which the washers can be brought into contact with the ends of the sleeve and shell forming the roller-race, substantially as described.

816,817. Valve-Controlling Mechanism for Gas Engines. Henry J. Podlesak, Chicago, Ill., assignor to International Harvester Company, a corporation of New Jersey. Filed Oct. 22, 1904. Serial No. 229,518.

Claim.—1. In a gas engine, the combination of inlet and exhaust ports and valves operating to open and close said ports alternately, means for operating said exhaust port valve, means unconnected with said valve-operating means for holding the inlet-valve positively closed, said means adapted to engage with and be directly controlled by the exhaust-valve in moving toward its seat.

816,846. Carbureter for Petroleum Motors. Ferdinand Charron and Leonce Girardet, Paris, France. Filed Mar. 22, 1902. Serial No. 99,415.

Claim.—1. A jet or spray carbureter for petroleum motors, comprising a carburation chamber to which leads the nozzle or petrol outlet nozzle and which is connected by one side to the air-inlet pipe and by the other side to the combustible mixture outlet pipe leading to the motor, in combination with an iris diaphragm arranged across the air-stream issuing section in the plane of the orifice of the nozzle, a rotating cylinder which controls the blades of the diaphragm and which is provided with windows for the outlet of the combustible mixture, a plate which keeps said cylinder in position and insures a joint on its circumference and a controlling-lever secured to the cylinder outside of the carbureter, substantially as and for the purpose set forth.

816,884. Detachable Pneumatic Tire. Charles S. Scott, Cadiz, Ohio, assignor, by license assignments, to The Goodyear Tire and Rubber Company. Filed Mar. 23, 1905. Renewed Mar. 5, 190. Serial No. 304,264.

Claim.—1. The combination of a vehicle-wheel rim having a depressed groove near its detaching edge, an annular, inextensible detachable, rim-flange, having an inner diameter which permits its ready passage over the outer edge of the groove and sprung into the groove to form an abutment for the rim-flange, substantially as described.

816,889. Flexible Tire. Albert V. Stichenlen, Gand, Belgium. Filed Dec. 16, 1904. Serial No. 237,118.

Claim.—1. A non-inflated tire comprising a cover, a lining for said cover, resilient or spring means for placing said cover under tension, said lining having annular pockets therein and elastically-extensible material contained in said pockets and arranged to be put under tension by said resilient or spring means.

816,906. Clutch. Gustave E. Franquist, New York, N. Y. Filed June 1, 1905. Serial No. 263,305.

Claim.—1. A clutch comprising a driving

and driven part, a sleeve slidably arranged within the latter and having a cam thereon, an arm bearing against said cam for frictionally engaging said parts together, and means for positively locking them together, said means being successfully operated by continuous movement of said sleeve and cam.

816,912. Dynamo-Magnetic-Power Transmission Device. John O. Heinze, Jr., Lowell, Mass. Filed Apr. 17, 1905. Serial No. 255,921.

Claim.—A driving-shaft; a driven shaft; a multipolar field, and an internal-slotted armature; one shaft being fixed to the field, and the other shaft fixed to the armature; commutator-segments fixed to and electrically connected with the armature-coils; a multiplicity of brushes to engage these segments, each brush being fixed to the field and between its adjacent pole-pieces; and electrical connections, whereby the windings of the armature are short-circuited through the brushes of the commutator, and the windings on the pole-pieces of the field, and poles are formed in the armature at the brushes, each pole of the armature attracting one and repelling the other, of its adjacent poles of the field and causing the field to move in the same direction as does the armature.

816,935. Steering Mechanism for Motor-Vehicles. Charles M. J. Petiet, Villeneuve la Garenne, France, assignor to Societe Anonyme des Automobiles Aires, Villeneuve la Garenne, France. Filed Dec. 8, 1904. Serial No. 235,939.

Claim.—1. A steering mechanism including in combination a rocking shaft, a pair of members bearing on opposite sides of said shaft respectively, each of said members having a complete screw-thread, the thread of one being in the opposite direction to the thread of the other, a third member having two screw-threads corresponding respectively to the threads upon the first two members, for pressing said members alternately forward, and threaded means for taking up play by adjusting the third member toward the shaft.

816,990. Sparking Igniter for Gasolene-Engines. John C. McLachlan, Toronto, Canada. Filed Oct. 31, 1904. Serial No. 230,871.

Claim.—1. In an electric igniter, the combination with the movable electrode having the actuating-arm adapted to have free movement in one way, of the spark-bar provided with a contacting end adapted to engage with the arm, the crank-wheel suitably driven and connected to the spark-bar, a supplemental sleeve through which the spark-bar extends provided with a guiding-bracket, a bearing-block located in the guiding-bracket and provided with an upwardly extending stem projecting through the top of same, a spring between the bearing block and the upper end of the bracket, a pin extending between the bearing-block and the sleeve and means for supporting the pin as and for the purpose specified.

817,051. Carbureter for Explosive Motors and Engines. Herman C. Doman, Oshkosh, Wis. Filed Mar. 10, 1905. Serial No. 249,417.

Claim.—1. A carbureter, comprising a casing provided with inner and outer walls, said casing provided with a central, mixing or vaporizing chamber, said casing provided with a water-jacket formed between said inner and outer walls, said casing provided

with a reservoir formed upon the outer wall intermediate its ends, a cross-pipe integral with said casing and communicating with the reservoir, a valve positioned within said pipe, a priming-cap depending from said pipe, said pipe provided with an outlet formed above said cup, a movable position upon said casing and normally closing said outlet, and a primer for moving said valve.

817,066. Pneumatic Tire. Sidney Hunter, St. Louis, Mo. Filed Sept. 21, 1905. Serial No. 279,435.

Claim.—A pneumatic tire comprising an inner rubber section, an outer rubber section composed of an outer metal sheath encircling the inner section and embracing the outer portion of its peripheral surface, elastic extensions secured to the edges of the sheath, and suitable lacing for uniting the extensions and drawing them tightly about the inner section, substantially as set forth.

817,104. Igniter for Internal-Combustion Engines. Arthur R. Curtiss, Golden, Colo. Filed Apr. 10, 1905. Serial No. 254,866.

Claim.—1. In an igniting device for explosive or internal-combustion engines, the combination of two electrodes, one stationary and the other movable, the movable electrode consisting of a plunger, connections for passing the electric current through the electrodes when they are in contact, a weak spring acting on one electrode to normally separate the electrodes, and an electrode-actuating lever, a second spring mounted on the lever and through which the latter acts to close the electrodes, the last-named spring also acting on the lever to effect a separation of the electrodes and simultaneously reacting on an electrode to hold the two electrodes in contact until the instant of separation.

817,124. Ball-Bearing. Fritz Loeffler, New York, N. Y. Filed Aug. 19, 1903. Serial No. 169,965.

Claim.—1. In a thrust-bearing, a rotatable cage, a series of main balls therein, a series of ball-tracks in said cage, and a series of smaller balls in said ball-tracks contacting with said main balls.

817,125. Means for Blowing Automobile-Horns. George W. Lorimer, Piqua, Ohio. Filed Dec. 12, 1904. Serial No. 236,564.

Claim.—An automobile-alarm embracing the following elements: an air-pump having a cylinder open at both ends; two heads therefor provided with longitudinal bolts adapted to secure said heads firmly against the ends of the cylinder, said heads being provided with legs or extensions for securing the pump in place; a piston located within the cylinder and secured at the approximate center of a plunger one end of which extends through one cylinder-head and constitutes operating means for the foot of the user, the other end thereof extending through the opposite cylinder-head; a spiral spring surrounding the latter portion of the plunger and resting one end against the cylinder-head and the other against the piston; an air-inlet in one cylinder-head and air-outlets in the other; in combination with a reed horn connected to the cylinder by an outlet-pipe having a ball-valve seated in a valve-seat connected with the outlet-pipe and provided with adjustable means for varying the flow of air therethrough; together with a regulating-screw located also in the outlet-pipe, the arrangement being such that the reed of the horn will vibrate for sudden pressure of the piston and the loudness thereof may be regulated as desired.

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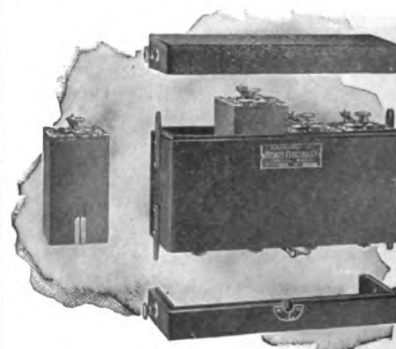
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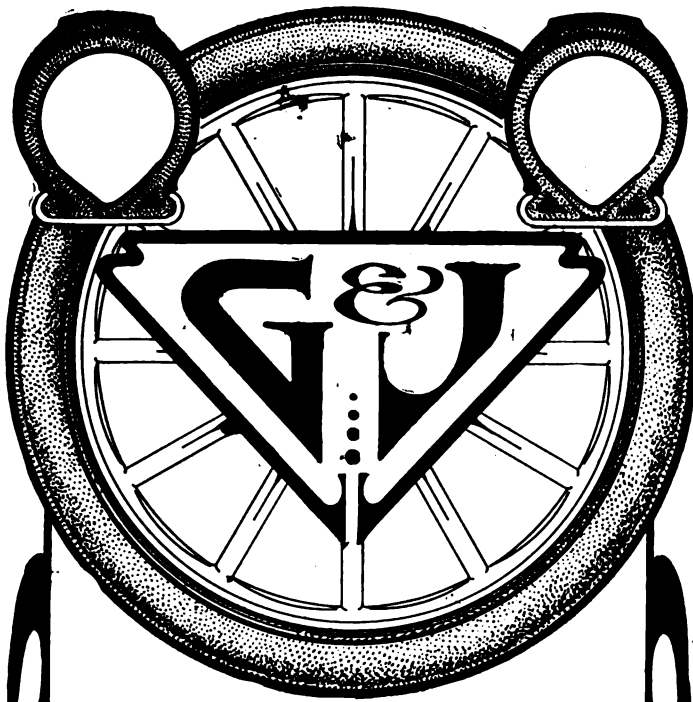
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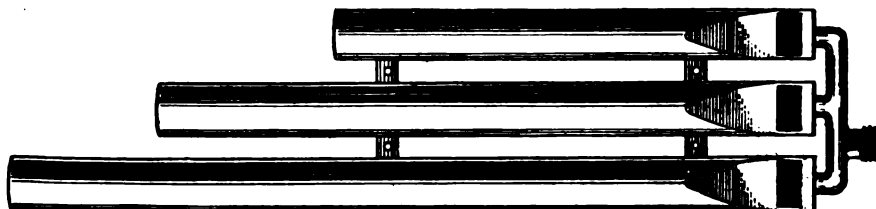
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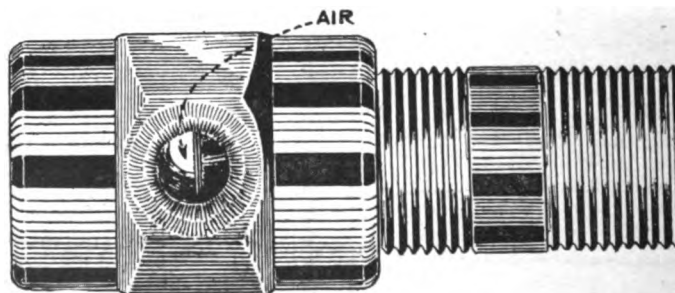
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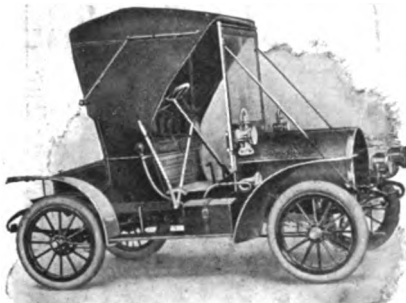
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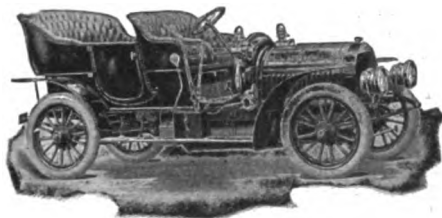
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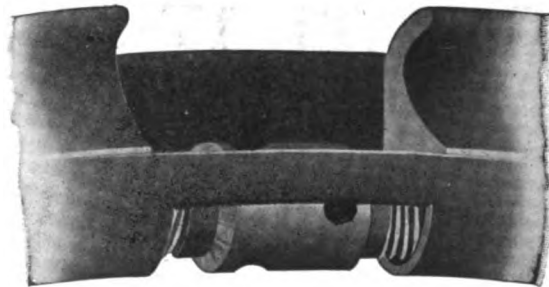
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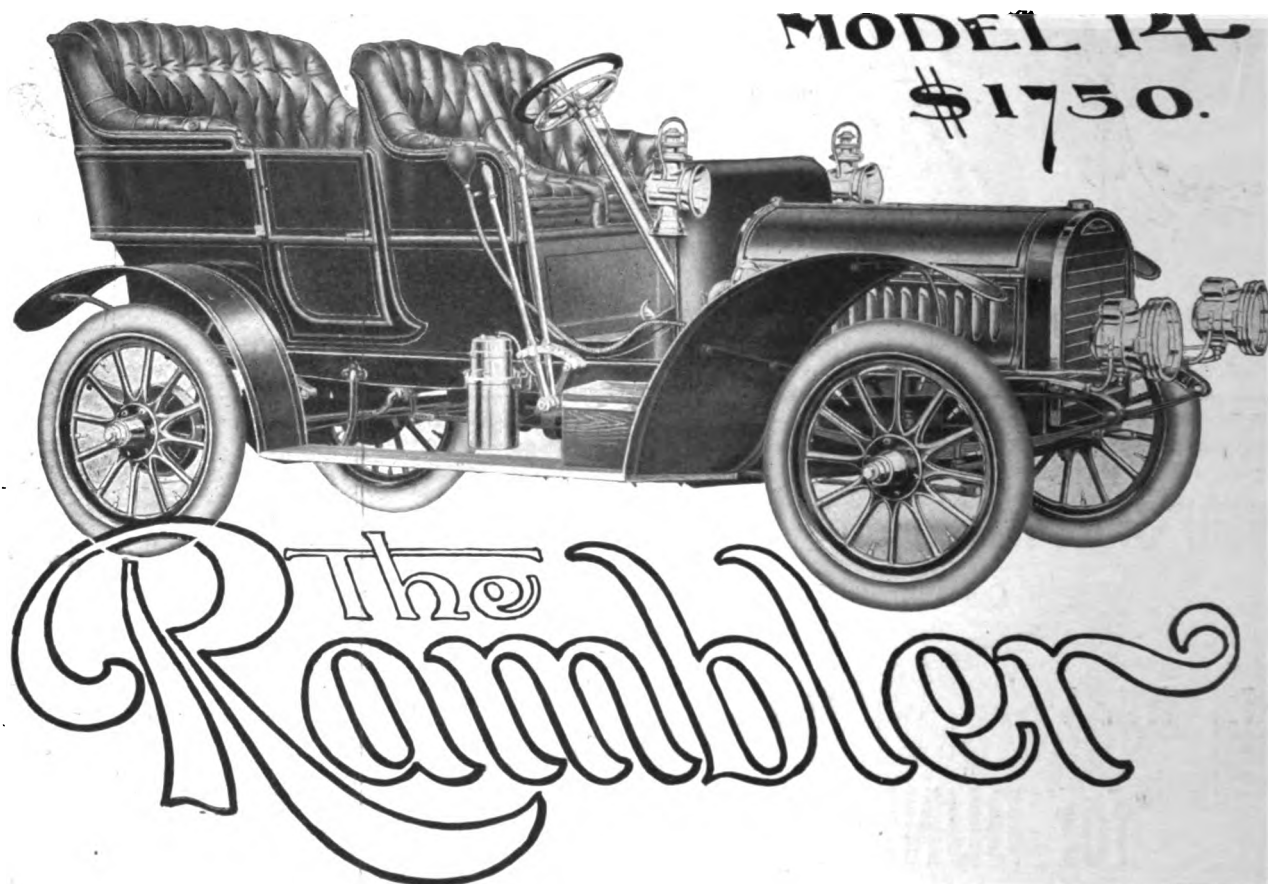
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THE MOTOR WORLD.

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE
AND KINDRED INTERESTS

Volume XII.

New York, U. S. A., Thursday, April 19, 1906.

No. 12

AEROCAR ACQUIRES OWEN

Detroit's Youngest Concern Springs a Surprise on Eastern Trade—Owen's Scope.

Alex. Y. Malcolmson's recent stay in New York has been fully explained: Percy Owen is now general Eastern sales manager of the Aerocar Co. Owen made the change late last week and simple though it may appear, few greater surprises have been given the trade.

Practically from its inception, he had been manager of the Winton Motor Carriage Co.'s New York branch and had come to be looked upon as one of the permanent pillars of the Winton institution. None suspected him of even harboring the idea of a change. There is no gainsaying that Owen is a distinct acquisition to the Aerocar staff and one whose influence will be felt. He has the experience, the acquaintanceship, the personality and the ability that assures it, and as he will have a good car, of which he will be able to make immediate deliveries, the fruits of his influence should quickly ripen.

Owen will, of course, preside over the new and elaborate Aerocar branch in New York, at 75th street and Broadway, and will also handle the Eastern business generally. Incidentally, he has just invited a young lady to preside over the Owen household it is his intention to create and she has accepted the invitation. The date of the wedding shortly will be announced.

Vehicle Equipment's "Discrepancy."

From a statement issued by the Creditors' Protective Committee, it appears that the liabilities of the bankrupt Vehicle Equipment Co. are upward of \$1,400,000, while the assets probably will realize less than \$100,000. The committee, which is composed of the Firestone Tire & Rubber Co., the Hartford Rubber Works Co., the National Battery Co., the Electric Storage Battery Co., and the American Hard Rubber Co., have called a meeting of the general creditors for April 24th. The statement says the committee is determined to force an explanation of the "extraordinary discrepancy" between assets and liabilities and

to select a trustee who will be "free and untrammelled and who will probe every circumstance to the bottom."

Changes in the Fosdick Company.

Harry Fosdick has purchased the interests of J. A. Dowling in the Harry Fosdick Company, Boston, Mass., the deal also bringing about the consolidation of interests with Robbins Brothers, Orient agents in Boston and Lynn. The officers now are as follows: Harry Fosdick, president; L. D. Robbins, treasurer, and A. N. Robbins, secretary. The paid in capital is \$25,000. On May 1st the Fosdick Co. will move into their new retail department in the Motor Mart, but the garage and repair business will be continued on Stanhope street, as at present.

Viqueot Closes its Doors.

The Viqueot Co., New York, has quietly and fully liquidated its accounts and gone out of business. This action was the direct and not unexpected outgrowth of the failure of the Vehicle Equipment Co., the Havemeyer interests being dominant in both concerns. The Viqueot Co. was of comparatively recent origin and was handling the Viqueot car which is made in Paris in a factory in which the Havemeyers are interested; it also had the American agency for the Oleo spark plugs.

Fire Destroys a Fisk Branch.

The Fisk Rubber Company's San Francisco branch was totally destroyed by fire last week, but fortunately the company had a large stock in its Los Angeles depot to draw on to make good the loss. Large shipments from the factory to San Francisco are now en route so that the fire will cause no delay in filling orders.

First Slice of Boston "Melon."

The 60 members of the Boston Automobile Dealers' Association received on Tuesday of this week the first dividend of \$450 a share, par value \$10, from the profits of the Boston show held last month. No statement of the profits has been given of the Boston Show Association, which was the promoting company.

PROBING VEHICLE EQUIPMENT

Court Upsets Lease and Proceedings Bring Out More Spicy Details—Millionaire Havemeyer as a Merry "Goat."

Further disclosures of an interesting nature were brought out at the continuation of the hearing on the affairs of the defunct Vehicle Equipment Co., before United States Commissioner R. P. Morle in Brooklyn, N. Y., on Thursday last. A rather merry inquisition to which the millionaire sugar refiner, William F. Havemeyer, was subjected, and the legal imbroglio in which opposing counsel for the creditors found themselves by the persistence of Henry A. Rubino, being the features of the occasion.

Rubino, representing the petitioning creditors, employed Standard Oil tactics in declining to answer every question put to him with a view to bringing out the fact that the bankruptcy had been brought about by agreement with the petitioning creditors, which was strongly implied by the questioning of Abraham I. Elkus, who appeared for a portion of the creditors. Mr. Rubino not only declined to answer, but declined to give grounds for declining to answer, and declined also to say why he gave no grounds, in true H. H. Rogers style, so that it was finally left for Judge Thomas to decide as to the competence of the questions put, and whether the witness should be compelled to answer them. Another revelation was an explanation why Charles Dewey, the public school principal who was appointed receiver had not taken possession of the plant immediately upon qualifying. It came out that he had no power to do so while the lease to the General Vehicle Co. remained in force, his action, or lack of action, having been taken with the advice and consent of Judge Thomas. Attorney Elkus' questions insinuated broadly that the lease and the petition in bankruptcy had been prepared by the same "cooks" at about the same time. On Tuesday last Judge Thomas handed down an order declaring the lease to the General Vehicle Company invalid

and ordering the receiver to take possession.

Such proceedings are not ordinarily looked upon as occasions for mirth—in fact, they are usually rather mournful affairs, particularly for those who have to bear the brunt of them, but the ordinary course of things was totally reversed when William F. Havemeyer was called as a witness.

Mr. Havemeyer was taken in hand by Abraham Elkus, representing a portion of the creditors, and said that he was the father of Hector H. and Arthur Havemeyer, officers of the Vehicle Equipment Co., the whereabouts of whom are matters of considerable interest to the attorneys in the case. Interrogated on this point, Mr. Havemeyer said that he had not seen either of his sons since the Friday before. Pressed for more particular information, he admitted that the only thing he knew concerning their present place of sojourn was the fact that "Hector is playing golf somewhere in South Carolina."

Coming to the main issue the witness said that he had never been connected with the company except as a stockholder and that he held probably 200 to 500 shares of stock, and that he had had no transactions or business with the company other than loaning money to it.

"I do not know whether you would ordinarily call that a business transaction or not," he added, and then said, good humoredly, "It certainly was not in this case."

"You must have considered it as a charitable bequest," remarked the inquisitor.

Questioned as to when these "business" transactions began the witness replied: "I guess I began to loan money to them from the very start; they got hard up and I let them have the money."

"I have never been an officer of the company and I think I have loaned about \$22,000 or \$23,000," he replied to further questioning, "and the whole amount is still owing without interest. I did not receive my security, bonds or unassigned accounts, but think I have notes. They are not endorsed," were answers which caused his audience to begin to smile.

The witness then testified to the ownership of \$100,000 worth of bonds, which he had acquired at 70; some when the company was first incorporated and the remainder about a year later; that he had known nothing whatever about the bankruptcy except indirectly and that he had never received a dollar in repayment of his loans. And further, that he was an endorser on the company's notes to the extent of about \$150,000, which were held by various banks and trust companies such as the Bank of North America, the Corn Exchange Bank, Van Norden and Knickerbocker Trust Companies, of which the witness said he was a director, with the exception of the last named.

"Some of the notes were endorsed by me at the request of my son and some at the request of the directors of the company," he added, supplementing this a moment

later by stating that Mr. Willcox, one of the directors and New York's Postmaster, was his son-in-law.

"I do not wish to express any opinion as to the value of my bonds," was the first answer of the witness on a new line of questioning, which brought a visible smile to the faces of all in the room, and none more than the witness himself, who apparently enjoyed the proceedings as much as those who had nothing at stake. "I suppose I bought the bonds at the request of the directors," he concluded.

After interrogating the witness at some length as to whether he had ever used his influence in procuring credit for the company from merchandise creditors, which brought an answer in the negative, Mr. Elkus asked Mr. Havemeyer:

"How did you come to loan all this money and endorse notes to such an amount as you say, without taking any security?"

"I have been wondering that very thing myself ever since I did it," replied Mr. Havemeyer, in a genuinely puzzled tone that set his audience roaring, so drolly was his answer delivered. "I was 'easy'; that was all."

By dint of questioning, Mr. Elkus brought out the fact that the bonds had been given as security for the loans in the ratio of two for one, so that Mr. Havemeyer admitted to the ownership of no less than \$450,000 of the company's bonds, \$370,000 of which he held as collateral, and the Knickerbocker Trust Co. held \$120,000 worth for the same purpose. That he had begun to loan money practically from the start and had loaned money ever since up to within a short time ago, an advance of \$4,500 having been made only last January on the security of an assigned account against the California Auto Dispatch Co. for \$9,000. He said "he had put his foot down and refused the company money a dozen different times." He had loaned this money one day and got it back the next, was the way in which he explained that he did not consider it a loan and had not spoken of it previously. He had lent \$2,000 more to ward off a persistent creditor even later.

"Yes, they invariably came to me when hard up. I insisted upon good security, but they always put me off with 'you better take bonds' and I was the goat," was the manner in which Mr. Havemeyer explained how he came to be the "doughbag" for the company. Mr. Havemeyer finally was excused, after testifying to the fact that he and all concerned had made every effort to save the company and that Mr. Edgar and Mr. Perry, who were directors and were also "General Electric" men, had done likewise, also that he thought it was a "General Electric proposition," by which he meant that the company had been trying to effect a reorganization as the Vehicle Equipment Co., never had the capital it needed."

William R. Willcox, New York's Post-

master, who was a director and counsel to the bankrupt, was the chief witness at a continuation of the hearing yesterday, but almost three hours' steady questioning by George Comstock, representing Ranier & Co., and James N. Rosenberg, of James, Schell & Elkus, representing the newly formed Creditors' Protective Association, failed to bring out any definite information. Mr. Willcox said that Hector Havemeyer had taken dinner with him on the Sunday evening previous, but that he had not seen him since. The hearing certainly did nothing to clear up or relieve the situation, as at the close of his questioning Mr. Comstock accused the witness and his fellow directors of being parties to a conspiracy to defraud creditors by entering into an agreement to lease a concern that had long been insolvent to one that had no financial standing, and Henry Rubino made a counter accusation that the opposing attorneys had willfully misconstrued his testimony at the former hearing and were sending it out in printed form in an attempt to control the election of its trustee.

As the minutes of the directors' meetings were not at hand, a great deal of time was wasted in asking questions as to what occurred at those meetings, of which the witness had but a hazy recollection. Mr. Rosenberg tried hard to make him admit that the company had never been otherwise than insolvent from its very inception, but the witness would not do so and declined to answer any questions as what part he played in the actual bankruptcy proceedings.

New York Dealers Elect Officers.

At a meeting of the New York Automobile Trade Association, held on Monday evening last for the purpose of the annual election of officers for the coming year, election of officers for the coming year, Percy Owen, now of the Aerocar Company, was elected president; Carl Page, White Sewing Machine Co., first vice-president, and C. F. Wyckoff, Decauville Automobile Co., second vice-president, while W. P. Kennedy was re-elected secretary and treasurer. It has been decided, however, to separate these latter offices and a special meeting shortly will be held for the election of a treasurer. Mr. Owen was the first president of the association, so that he is not new to the duties of the office.

Churchill Succeeds Percy Owen.

C. W. Churchill, assistant manager of the Cleveland branch of the Winton Motor Carriage Company, has been appointed manager of the Winton New York branch house, to succeed Percy Owen, who resigned to go with the Aerocar Co. Churchill had just been appointed the Winton company's Eastern supervisor when Mr. Owen's resignation was received, so that understanding the duties of his new office will not involve as much of a change as would otherwise have been the case.

JAILED THE TWO JACKSONS

Illinois Victim Shows the Way to Reach Second-hand "Sharks"—How they Worked.

When a few of the proprietors of so-called automobile companies and storage houses that sell second-hand crocks to "easy marks" are lodged behind the bars, the legitimate second-hand business will be in a much more healthy condition, and that there is a way to reach the "sharks" an Illinois jeweler has demonstrated.

Two of the ilk, Dwight E. and A. H. Jackson, who were supposed to do a lawful business at 313 Nicolett avenue, Minneapolis, Minn., were last week fined \$350 each and sentenced to imprisonment for ninety days in jail by Judge Morris, in the United States District Court, in that city, for using the government mails for fraudulent purposes. Their specific crime was defrauding S. A. Crippe, a jeweler of La Place, Ill., in the connection with the sale of a second-hand machine.

According to information received in New York yesterday, an advertisement appeared in a trade paper last May offering "a 1904 White steamer for \$600," half to be sent on to bind the bargain and the balance to be sent when the machine had been delivered and had been tested by the purchaser. This advertisement was signed by the "Advance Manufacturing Co., Minneapolis."

H. H. Haynes, the Minneapolis agent for White cars, noticed the wonderful inducement and scenting a fake because of the low price, started in to investigate the offer. After some difficulty he found that the "Advance Mfg. Co." consisted of the Jackson brothers and two other persons who carried their office in their card cases. The machine in their possession was, it was discovered, not a White, but a ramshackle, home-made affair that had never run around the block. The publisher of the paper was notified of the fraudulent character of the advertisement, and it was removed from the paper—but too late, as it was afterwards discovered.

At the end of June a letter was received at the White factory in Cleveland from S. A. Crippe, a jeweler, of La Place, Ill., requesting an instruction book, as he "had just bought a White car, which will arrive to-morrow." A few days later Crippe wrote again, saying: "I have been swindled. I sent the Advance Manufacturing Company \$200 in prepayment and they sent me a machine which in no respect resembles a White."

Thereupon the victim, in co-operation with the White Company and Mr. Haynes, undertook criminal proceedings against the Advance Manufacturing Co., which resulted in the imprisonment and fining of the Jackson brothers.

Rubber Goods Reduces Directorate.

At the annual meeting of the Rubber Goods Manufacturing Co., held in Jersey City last week, the membership of the board of directors was reduced from fifteen to nine. These were the directors re-elected, Charles H. Dale, Ernest Hopkinson, Charles A. Hunter, Frank W. Eddy, Arthur L. Kelley and Samuel P. Colt. The new members chosen were Anthony L. Brady, Lester Leland and John J. Watson, Jr.

The directors who retired were Talbot J. Taylor, Edward Lauterbach, Harry Keene, C. J. Butler, M. J. Blanchard, H. O. Smith, E. J. Coughlin, W. J. Courtney and J. H. Cobb.

The report of President Dale for the fiscal year ended March 31, shows an increase in the surplus over the preceding year of \$158,477. The sales of the company were \$17,662,453, an increase of \$207,768.

Douglas Andrews Down and Out.

Although Douglas Andrews is now entirely out of the New York company which bears his name, the style the Douglas Andrews Co. will be continued, but instead of having the general sales agency for the Berkshire car, its scope will be limited to the metropolitan district. The officers of the concern now are M. J. Mercer, president and treasurer; F. V. Whyland, secretary, and C. S. Tate, manager. It was Andrews personally and not the company who had the sales agency for the Bliss car which last week was transferred to F. C. Armstrong. Andrews, who, previous to his entry into the automobile business, was employed in a Brooklyn telephone office, is now recuperating outside of New York.

More Room for Shock Absorbers.

After May 1 the Hartford Suspension Company will be located in its new building at Broadway and Eighty-eighth street, New York City, and the factory will be moved from Hudson street to the corner of Clarkson and West streets. This will give three times the present amount of floor space which, according to President E. V. Hartford, will not be more than enough.

Solar Factory for New York.

In addition to the one in Kenosha, Wis., there shortly will be a Solar lamp factory in the East—in New York City, to be exact R. H. Welles, treasurer of the Badger Brass Mfg. Co., is now in New York and expects to close negotiations for a plant before he leaves.

Splitdorf to Open Uptown.

For the convenience of the uptown demand, C. F. Splitdorf, the well-known coil maker, has taken the lease of the four-story building at 1679 Broadway, of which he will take possession May 1st. A full stock of Splitdorf coils and other ignition appurtenances will be carried, of course.

BALTIMOREIANS AMBITIOUS

Dealers Incorporate an Exhibition Association and now Plan Weekly Race meets.

A tangible result of Baltimore's first automobile show developed last week in the formation and incorporation of the Maryland Motor Exhibition Association, with headquarters at room 501, Piper Building, Baltimore. The association, which is for the most part composed of tradesmen in the Monumental City, will not confine its labors to the limited field of holding an automobile show once a year. In view of the fact that the automobile racing fever seems to have taken hold of Baltimore, the new organization expects to satisfy the craving for speed by holding automobile race meets once a week, and it now is considering the selection of one of three tracks under consideration. Many are favorable to the idea, but there are those who point to New York as an example and point out the fact that weekly automobile race meets in a city many times smaller than New York, where the venture proved a failure, would have the effect of killing a sport which until now has been successful in that city. The conservatives argue that race meets held frequently, but not weekly, would stimulate interest in automobile track racing and not cause the Baltimorean public to lose all interest in the sport.

The Maryland Motor Exhibition Association was incorporated for \$1,200. The following officers were elected: President, B. R. Johnson; vice-president, Howard W. Gill; treasurer, A. S. Zell; secretary, E. L. Buchanon; directors, the officers and Robert J. Atkinson.

Why one Show Association Disbanded.

At a meeting held in Boston on Wednesday night of last week, it was voted to disband the Boston Show Association. The association comprised a number of men identified with the automobile industry that acted in conjunction with the Boston Automobile Dealers' Association in holding the annual show in that city. As some of the members have moved out of town, thereby leaving the greater part of the work to be done by those remaining, yet sharing equally in the profits, it was decided to dissolve. One of the officers of the association stated that there might be a re-organization later if it were found that the association had not outlived its usefulness.

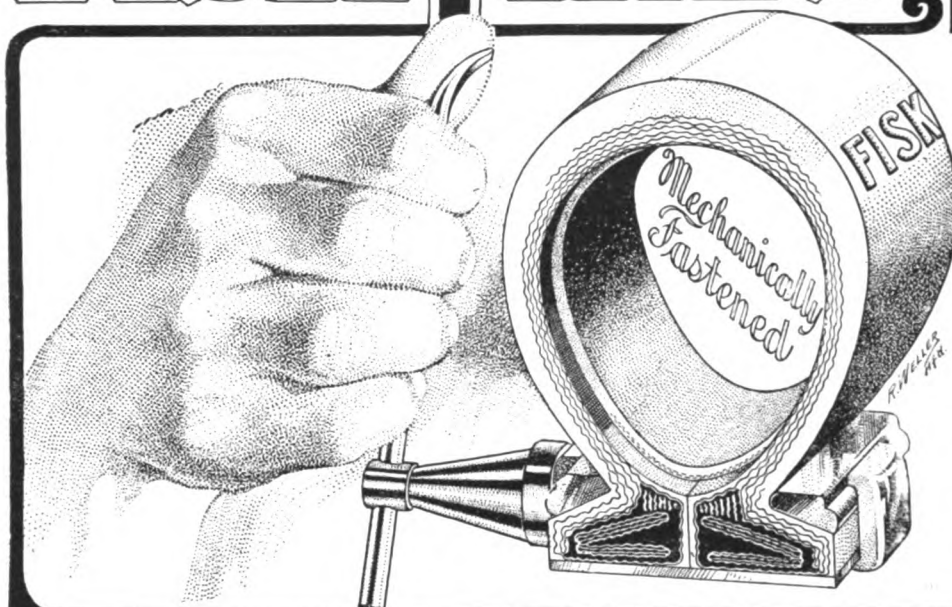
Rates Reduced on Tires for Western Points.

The efforts of the Fisk Rubber Co., acting for the tire manufacturers generally, to obtain a reduction of rates on rubber tires to Western points, has achieved results. To Denver and all points common thereto and to Salt Lake City and all points common to that city, the rate has been lowered to 43½ cents per hundred pounds, a very substantial reduction, tonnage considered.

FISK TIRES

SECURELY LOCKED
TO RIM

INSURING POSITIVE SAFETY



— THEIR —
EXCLUSIVE FEATURES
HAVE GIVEN
FISK TIRES
WORLD-WIDE CELEBRITY,

These points of advantage, combined with Durability (insured by the finest Quality and Workmanship) have caused there enthusiastic endorsement by every one of experience.

Note the Air Space
All above the Rim!

The Fisk Rubber Co.,
CHICOPEE FALLS, MASS.

THE FISK RUBBER CO. — CHICOPEE FALLS, MASS.

CADILLAC

SINGLE CYLINDER CARS

“A Dead One.”

Yes, That's what some unscrupulous competitors (?) would have you think. But, let's see.

Up to and including March 31st, we had shipped since January 1st, just 1,057 of these same single cylinder Cadillacs (these “dead ones”). In fact all but a very few of them were shipped since February 10th, some days running over 40 cars (one complete automobile every fifteen minutes). (These “dead ones”).

Of the above, we shipped to one dealer in a large city where competition is supposed to be strongest, 82 (of these “dead ones”).

In the face of this output, we are over four hundred cars behind specification dates, largely because so many of our dealers have increased their original orders — (On these “dead ones,” mind you.)

We are already again increasing our facilities and commencing in April and during the season will be turning out 50 or more cars per day (These “dead ones.” Our Catalogue tells all about them (The “dead ones”).

CADILLAC MOTOR CAR COMPANY,

Detroit, Mich.

Member Association of Licensed Automobile Manufacturers.

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To Facilitate Matters Our Patrons Should
Address us at P. O. Box 649.

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Sifting the Chauffeurs.

With mechanics, washers and telephone boys graduating from the garages to a post behind the wheel, schools, good, bad and indifferent, turning them out like so much grain flowing from a hopper and all other sources of supply adding their quota, the demand for competent chauffeurs was never more pressing than at the present moment.

The average handy man who is quick to acquire the knack of handling the steering wheel and keeps his eyes and ears open, picks up more than a sufficient smattering of the rudiments of the game in the course of less than thirty days to favorably impress the uninitiated owner of a car with the great depth of his knowledge and ability. If he manages to run the car for a few weeks without anything serious happening he gets a foothold in the good graces of his employer that a far more experienced and capable man sometimes proves unable to win. Then again, sheer luck may guide his awkward thumbs and ignorant hands to just the spot to correct some trivial derangement that has caused the car to stop

momentarily and a few such occasions are sufficient to establish his reputation.

A month at this and he is a full-fledged chauffeur who considers it beneath him to accept anything but the maximum wage, and if his first employer, at whose expense he has gained his meagre experience, is not willing to stand for an advance, he backs his cupful of knowledge with unlimited bluff and usually wins out, by landing in a better berth. It frequently happens that, favored by fortune in serving an employer whose demands seldom keep the car long away from the garage, such a driver may find life behind the wheel an unending round of pleasure, and undoubtedly there are scores of this very type who have little or no difficulty in obtaining and holding positions. Many of them go on indefinitely and by dint of persevering application to the tactics that brought them into the game primarily, manage to become fully as competent as the average chauffeur to be found anywhere. Others, content to let well enough alone, sooner or later meet their Nemesis on the road in the shape of simple repairs that are beyond their limited knowledge to fathom and correct, or that have been brought about by their neglect, though the latter is not usually the case where the owner is willing to pay the bills, as this type of driver takes pains to see that his work is done by the garage attendants.

It would take a volume to even attempt to describe the thousand and one channels through which men drift to the post of chauffeur. Many whose first glimpse of, the to them, totally foreign sphere, has first been gained by loitering about a garage have sooner or later found themselves chauffeurs at a stipend far greater than any they had ever hoped to command in other lines.

What is the remedy? It lies almost wholly with the owner himself; as long as people who buy cars are willing to entrust the custody of their property to drivers of whose antecedents or prior training they are absolutely ignorant, that long will the self-made and irresponsible type of chauffeur continue to flourish. Were all motorists as careful in employing men for such a position as they are doing the same thing where business is concerned, the chance of the man who is a mere "butter-in" would be slim indeed. He would be compelled to work about a garage until he knew sufficient to take care of a car. The reliable school and conscientious garage keeper

who will not recommend an incompetent, always should be the motorist's source of supply when in doubt.

As for the dire prophecies of impending evil to motoring generally through the constantly increasing influx of green drivers, there need be little said. The situation is akin to that which confronts every other field of endeavor at an early period in its history and nothing but the eliminating processes worked by time will provide a remedy. No revolutionary changes are to be looked for one way or the other. Things of this nature progress slowly and are not to be hurried; in the fullness of time conditions will have changed so completely and yet so imperceptibly that many will wonder what there was to be alarmed about.

Status of the Touring Car.

That the modern motor car in its most popular form, in the form which is most in vogue, is one of the most wasteful and expensive luxuries ever put before the man of means under the guise of a medium of pleasure and a source of uncounted benefits, is a doctrine which is not likely to find favor either with the manufacturer or with the user as a class. Yet the undeniable truth of the assertion stands forth in glaring simplicity, and is not to be controverted by even the most ardent enthusiast. That it is so, is by no means the fault of the builder, but rather that of the user himself who has proved himself willing, even eager to subscribe for a form of amusement which in its extravagance is almost without parallel, in the world of recreation. Moreover, since, as in the case of certain food stuffs, "there's a reason," there need be no cause for immediate alarm to the industry from the prevalent trend toward more elaborate and expensive forms of motor car. But what may be its ultimate effect, is only a matter of conjecture for the wise man to ponder, and the iconoclast to rant about.

As to the rectitude of the cry of extravagance, consider the case of the man who uses his forty horsepower touring car to go and come from his business in the city. Perhaps he lives in the suburbs, or well up town, and has to travel a distance of fifteen miles, or even twenty-five miles and back every day. For the purpose, he employs a machine costing \$5,000, and occasionally, he carries with him a single friend. Besides these two the car carries a mecanicien, whose weight must count with the weight

of the machine, in considering the cost, and hence, the total profitable load, may be set down as being not over three hundred and fifty pounds at the outside. To carry this, the services of something like three thousand pounds of manufactured material are required. This material is the most expensive and perfect in structure which money can buy, and into its manufacture, have been put the best efforts of a large force of men, all of them high-class mechanics, and the most careful factory supervision of which the mechanical arts are capable. And yet this great mass of material capable of running at the rate of fifty miles an hour, climbing hills, and traversing the roughest of country, is reduced, per force, to an average of perhaps fifteen miles an hour, and after having made one round trip with its load, and one without it, must lie idle for the greater part of the day. On holidays, the program is varied by a run of one or two hundred miles, but even with this, the mileage in the week is so small that balanced against the first cost, and the cost of operation and up-keep, the load efficiency is pitifully low.

Of course, as it furnishes the most advantageous and pleasant means of getting about, the vehicle put to such a use is not lightly to be thrown aside, yet its position from an economical standpoint, is not an enviable one. The status of the touring vehicle in its most popular form is hardly more pleasing from the same point of view. There, the load efficiency is somewhat greater, and the element of cost, is even less to be considered than in the first instance, yet the tremendous superfluity of material—essential to the last ounce, when considered in detail, yet alarming extravagant when taken in the aggregate—is still apparent.

That the same amount of work as is accomplished by the modern touring car, might be accomplished at the expense of moving a far less cumbersome and complex machine, is apparent from the performance of the lighter weight cars which are in use at the present time. That its accomplishment by a less pretentious assemblage of parts, would be at a certain sacrifice of luxury and expense of superlative finish, also, goes without saying. And it is equally true that the placing of the motor car on a more economical basis, would result in its becoming popularized to a degree which might result in the lessening of its prestige among certain of its present adherents. Yet this is bound to come in the end in any

event through the process of cheap imitation and the installment plan of purchase.

Hence, it is to be borne in mind that, while nothing can dim the glory of the traveling boudoir car of the day, or the magnificent touring coach, with its comforts and its speed, it is not grounded upon a firm foundation, nor one which is likely to endure for more than a few passing years. The mechanically propelled vehicle has come to stay, like the subway and the automatic vending machine, yet its most enduring form will be that which appeals to the greatest number of people. The low priced car may not be a thing of beauty nor a joy forever, in prospect; it may not be a thing easy to achieve; but it is to become the backbone of a great industry. The twenty thousand dollar limousine, is far more ornamental, more to be desired, pleasanter to ride in, and altogether a work of art, but it is too much of a good thing to last indefinitely and ever must be the vehicle of the classes.

It has apparently taken the professional politician some time to realize that the automobile might be made to serve his purposes in ways other than as a butt for hostile legislation, but he seems to have "arrived" this spring, if the fact that two State legislatures at least, have attempted to pass bills providing for "State automobile commissioners" or soft snaps under other names. And a more open strike of this kind than New York's bill proposed by Assemblyman Weber would be difficult to find. He would spend some of the State's money for recording statistics of automobile accidents of all kinds. Just what is to happen to these valuable figures after they have been laboriously compiled does not appear.

The "lady racer" is almost due to make her annual appearance in competition with men. Will the new A. A. A. Racing Board, like its predecessor, suffer that sort of thing to continue or will it wait, as the old board waited, for an accident to occur, when outraged public opinion will require that the check be applied?

Scientists have always contended that the odor of gasoline is fatal to Jersey's chief product, the mosquito. This is something the anti-automobile legislature should keep in mind when doing their best to drive the car off New Jersey roads and raise an impenetrable barrier to visiting motorists.

The Week's Incorporations.

Lansing, Mich.—Reo Car Co., filed articles changing its name to the Reo Motor Car Works.

Grand Rapids, Mich.—Lubek Automobile Co., under Michigan laws, with \$15,000 capital. Corporators not named.

Philadelphia, Pa.—United States Motor Vehicle Co., under Delaware laws, with \$100,000 capital. Corporators not named.

Tacoma, Wash.—Tacoma Automobile Co., under Washington laws, with \$5,000 capital. Corporators—W. W. Pickerill, C. N. Seeley and E. R. Wheeler.

Chicago, Ill.—Walden W. Shaw Co., under Illinois laws, with \$20,000 capital; to make automobiles and accessories. Corporators—Walden W. Shaw, Bronson Buxton and Jessie K. Shaw.

Camden, N. J.—Company 2 Motor Co., under New Jersey laws, with \$1,000,000 capital; to manufacture and deal in motors of all kinds. Corporators—J. Jenks, R. Anderson and J. L. Rodgers, all of Camden.

Chicago, Ill.—Auto Rental and Repair Co., under Illinois laws, with \$2,500 capital; to repair and rent automobiles. Corporators—F. W. Ritchey, J. E. Smeyd and H. A. Pierce.

Chicago, Ill.—Darracq Motor Car Co., under Illinois laws, with \$5,000 capital; to manufacture automobiles and accessories. Corporators—Joseph B. McKeague, Hosea W. Wells and Charles C. Stilwell.

Los Angeles, Cal.—Anti-Rubber Tire Co., under California laws, with \$300,000 capital; to make leather automobile tires. Corporators—Charles R. Twitchell, James M. Brennan and Charles Fuller Gates.

New York City, N. Y.—Hastings Motor Car Supply Co., under New York laws, with \$1,000 capital; to deal in supplies. Corporators—E. S. Perat, G. J. Jackson and Cornelius Gallagher, all of New York City.

Pittsburg, Pa.—Fort Pitt Automobile Co., under Pennsylvania laws, with \$20,000 capital; to deal in automobiles. Corporators—John R. Stubbs, Thomas McGovern, A. I. Crooke and James E. Glass, all of Pittsburg.

New York City, N. Y.—Harvey Auto Shop, under New York laws, with \$5,000 capital; to deal in automobiles. Corporators—C. H. O'Neill, W. K. Hadley, J. E. Murray, E. W. J. Taylor, of New York City; L. Powers, Ossining, N. Y.

Baltimore, Md.—Maryland Motor Exhibition Co., under Maryland laws, with \$1,200 capital; to hold automobile shows and automobile race meets. Corporators—Howard W. Gill, A. S. Zell, E. L. Buchanan, B. R. Johnson and R. J. Atkinson.

Pittsburg, Pa.—Colonial Automobile Co., under Pennsylvania laws, with \$25,000 capital; to deal in automobiles. Corporators—Max Reinhold, of Milvale; Harry M. Miller and D. M. Miller, of Pittsburg; Louis M. Schaeffer, of Halsville; and Lawrence H. Kril, of Sharpsburg.

HANDBOOK STATISTICS

Figures that Interestingly Illustrate Several Phases of the American Industry.

With the issuing of hand books by both the "licensed" and the "independent" associations this year, it has become possible to easily compile some very interesting figures regarding the number of models now being placed on the American market by domestic builders, as well as their chief features and selling prices. There are 52 manufacturers altogether, in both associations, 31 in the former and 21 in the latter, and between them there are now being offered no less than 166 different types of American built cars. Of this number the licensed builders are responsible for 108 models and their independent competitors for the remaining 58. The average price of the former number is \$3,600, and of the latter \$2,024, so that the average price of this year's American car taken as a whole is \$2,812.

"Licensed" figures range from \$650 for the Oldsmobile and Northern single cylinder runabouts up to \$18,000 for a 90 horsepower, four-cylinder Locomobile such as was built for the Vanderbilt Cup Race last year, and the buyer may pay almost anything he wishes between these two limits or go even higher if he chooses. No less than 26 different models in this category list at \$5,000 or more, the 60 horsepower Matheson at \$7,500 heading the touring car type.

The Ford four-cylinder runabout at \$500 naturally opens the "independent" list which finds its maximum at \$6,000 in the Austin 60 horsepower limousine, although the majority of cars under this heading fall below \$3,000 and not a few of them below \$2,000, this being well illustrated by the fact that the general average for the entire range of "independent" cars is but \$24 over the latter mark.

Where the characteristics of the various types turned out by the members of each of the organizations are concerned, it is curious to note how closely they compare as a whole. For instance, there is but one three-cylinder engine employed in each instance, the Duryea in the "licensed" stronghold and the Elmore in the "independent," while two manufacturers in each body are turning out six-cylinder engines, the Franklin and Stevens-Duryea in the former and the Ford and National in the latter. The comparison may be carried even further although there is a majority of three in the "independent" ranks on the air-cooled principle, this being represented in the latter instance by the Corbin, Frayer-Miller, Aerocar, Marion, Marmon and Premier cars, while in the former the Franklin, Knox and Waltham models complete the list.

It goes without saying that the four-

cylinder engine is the chief characteristic of the bulk of the models in both lines, there being no less than 86 "licensed" cars of this type, the remainder being made up of 13 two-cylinder and 9 single cylinder types. Applying a similar classification to the "independent" group the figures are 34, 16 and 1 respectively.

Of no less interest is the centralization of the industry in different cities of the country in which respect Detroit takes the palm, although closely pressed by Cleveland and Indianapolis. Of the 52 makers comprising the total, 6 are located in Detroit and there are 4 more near it in the same State. Indiana boasts of 8 factories, most of them near Indianapolis, while Cleveland has 4 with three others near it. No less than six different makes of machines are constructed in New York State.

In the Retail World.

Joseph F. Monfort has opened up at 1309 Sycamore street, Cincinnati, Ohio. He is agent for the Reo cars.

The Broadway Automobile Exchange has leased the building at 347-349 West Forty-seventh street, New York City.

Robert Morrison will embark in the automobile business at Lisbon, Ohio. He has been employed in a Lansing (Mich.) automobile factory.

The Sid Black Automobile Co. moved into its new garage at 21 East Ninth street, Cincinnati, Ohio, last week. This year the company's line comprises the Olds, Buick, Franklin and Thomas cars.

W. M. Griffin, the Fort Wayne (Ind.) dealer, has disposed of his garage and stock to a stock company which will be known as the Griffin Motor Co. Fay Randall, of that city, has bought most of the stock and will take charge of the business.

The big frame circular-shaped building at Lake and Heck streets, Asbury Park, N. J., which has been used for skating rinks, merry-go-rounds, basket ball courts and numerous other purposes, is to become the home of the automobile. The building is to be known as the Monmouth Garage, and will be managed by Fred Kunz, of New York City.

Morristown, N. J., is to have a large stone garage. A plot of ground in Pine street, 80x192 feet in dimensions, has been purchased by Victor A. Wiss & Bro., who will start at once the construction of a building 50x180 feet in size, affording 9,000 square feet of floor space. The garage will be ready for occupancy by June 1.

A new company for Pittsburg, Pa., which was formed last week is the Fort Pitt Automobile Co., with \$20,000 capital, and a large garage is being erected for it at the corner of Baum street and Euclid avenue. Olds, Stearns and Waltham cars will be carried. These officers will govern the company: President, John R. Stubbs; secretary, Thos. McGovern, Jr., and treasurer, James E. Glass.

THIEF'S NEW TRICK

It Required that he Pay the Repair Bill, but it Netted him a Car.

A daring case of larceny and forgery has just been brought to the attention of the Kenosha (Wis.) police, in connection with the theft of an automobile from the plant of the Thomas B. Jeffery Company in that city. The automobile was owned by J. W. Lone, of Lake Geneva. Last fall, when Lone went to California to spend the winter, he sent his car to the factory to be overhauled and repaired for the new season. A few days ago he wrote to the plant asking that the machine be shipped to him at Lake Geneva. The managers of the plant sent back a letter stating that the machine had been shipped on his order to South Chicago more than a month ago. Some man who had known of the conditions, went to the Jeffery plant several weeks ago and asked to inspect the car, giving the name of John W. Lone. Lone was not known to the men in charge of the department and after the stranger had inspected the machine he asked for a bill for repairs and storage and a day later sent draft for the amount with a request that the car be forwarded to him at South Chicago. No trace of the man or machine has been found.

Extent of the Import Trade.

Official figures issued by the Department of Commerce and Labor at the instance of the Association of Licensed Automobile Manufacturers, show that the total number of foreign automobiles imported into the country during the past year fall short by about 200 cars of the recent estimate made from the New York customs records.

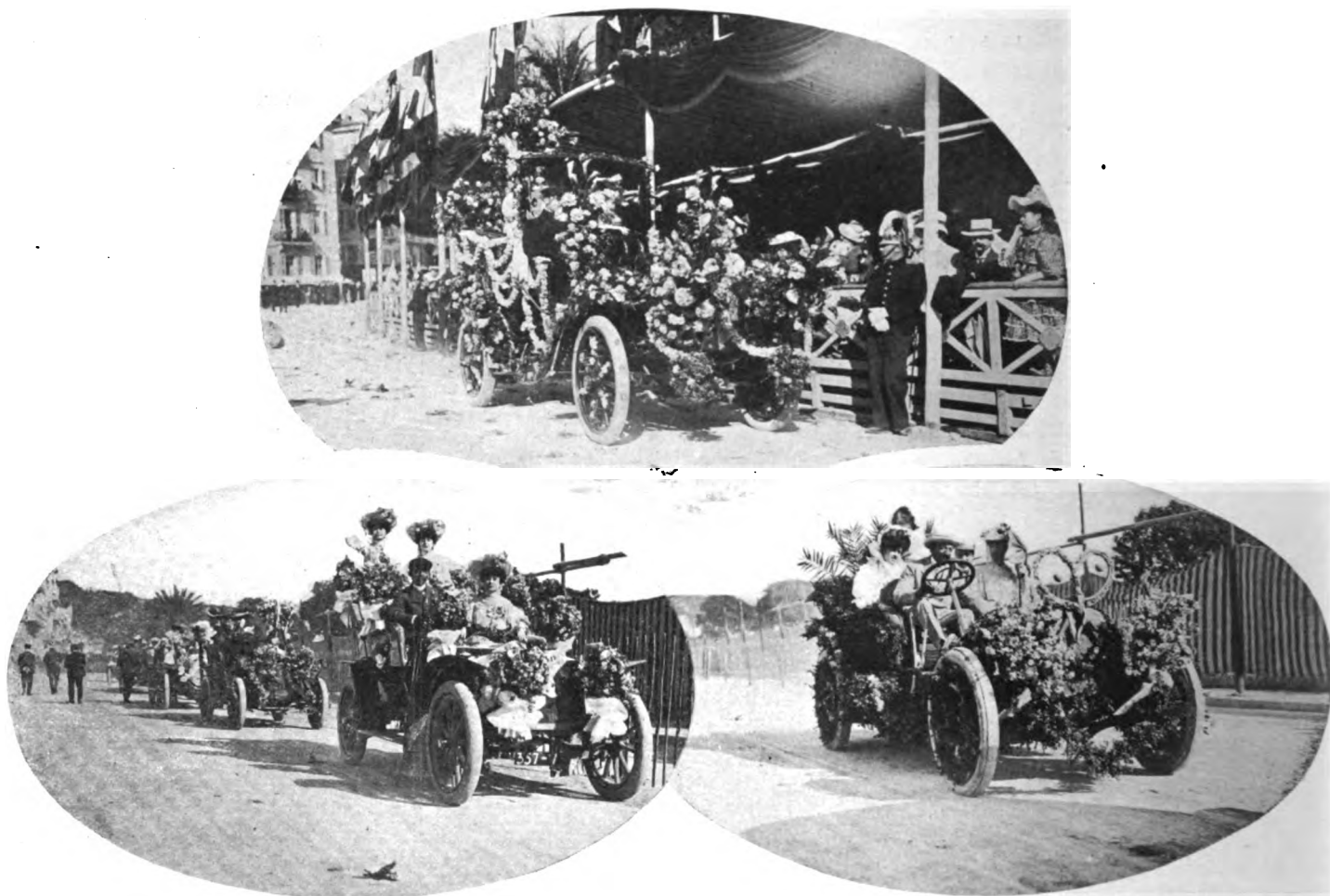
In all there were 896 cars imported of a total value of \$3,184,174, on which there was paid \$1,431,075 for duty. New York naturally led, with a total of 827 cars aggregating \$2,930,402 in value, the combined figures of Boston and Charleston coming next with 29 cars totaling \$99,583, the remainder of the list being completed by Chicago with 16 cars of a value of \$58,510, and Philadelphia, 13 cars of a value of \$57,613.

In addition a total of 8 cars were received at various other points, such as Cleveland, O., Kansas City, Mo., Newport, R. I., Louisville, Ky., Grand Rapids, Mich. and Georgetown, D. C. During the same period there were imported automobile parts aggregating a value of \$231,606.

Kedwin Making a Southern Sweep.

John Kedwin, representing the mechanical department of the H. H. Franklin Co., is making an extended trip through the Southern States which will take him as far south as Tampa, Fla., from which town he will cross to Havana, Cuba, and Merida, Yucatan. He will return by way of Mexico City and Dallas, Texas.

The Flower Fete at Ancient but Famous Nice.



Of all the events which mark the giddy season along the Riviera, probably none attracts more widespread attention alike from the colonists of that wonderfully fair region and the pleasure seekers of all Europe than the Flower Fete at Nice, and the automo-

bile parade which has come to mark its conclusion. This year, there were more than sixty cars in line on the first day of April, when the procession wended its way along the magnificent boulevards of the ancient town, and not a few notables were

among them, the King of Sweden being the most notable. The picture shows a few of the cars, and gives some idea of the setting as well as revealing the degree of elaborate preparation which was outlaid in decorating the cars

Now it's a "Nullius Filius."

An automobile is a "nullius filius" which, being literally translated, means a "son of nobody," in insurance law, according to the answer of the Assistant Attorney General of Washington to the Insurance Commissioner asking how automobiles ought to be classified for purposes of insurance. "An automobile appears to be a nullius filius in our insurance law," says the Assistant Attorney General. "No niche clearly appears in the insurance laws for such risks. While this modern machine is a thing of beauty, it is an inanimate object, and for that reason livestock, casualty or life insurance will not cover the risk. This leaves only marine insurance and, indeed, there are many points of similarity in the risks assumed between an automobile and a ship. Both are liable to collision, fire, breakdown, explosion, injury from the elements and running amuck, and insurance

that meets the risks of a floating vessel apparently cover the risks of an automobile."

New Jersey Counting the Cost.

A bare hint of what New Jersey's new motor vehicle commission is going to cost the State each year is best set forth in the general and supplemental appropriation bills which were passed by the Senate last week. By it \$10,500 was appropriated for the new automobile department. One of the biggest single items in the State roads appropriation was the item of \$4,000 for the purchase of an automobile to be used by the State Road Commissioner in pursuance of his duties. As this official does a vast amount of traveling in the course of a year the automobile will, besides proving a money-saver, enable him to come into closer contact with his work, which ought to be productive of great good.

Horse Ends Wayne Non-Stop Trial.

On Thursday afternoon, last, an accident which was no fault of the machine put to a summary stop the six-day non-stop run the 50 horsepower Wayne car was making over the streets of New York City. At 5 o'clock the car got in a jam of vehicles at Fifty-eighth street and Broadway and a horse-drawn cab backed into it and punctured a 5-inch hole in the radiator. James Rothford was driving the car at the time and he managed to take it back to the Wayne salesrooms before the engine heated. A. L. Kull declared the trial off as it would have been only a matter of a few minutes before the engine would overheat, as the water had all leaked from the radiator. During the 87 hours the car had been running it had covered a total distance of 1,261 miles, an average of 14.4 miles an hour, and during that time not an adjustment had been made.

FLORIDA'S SECOND SANDFEST

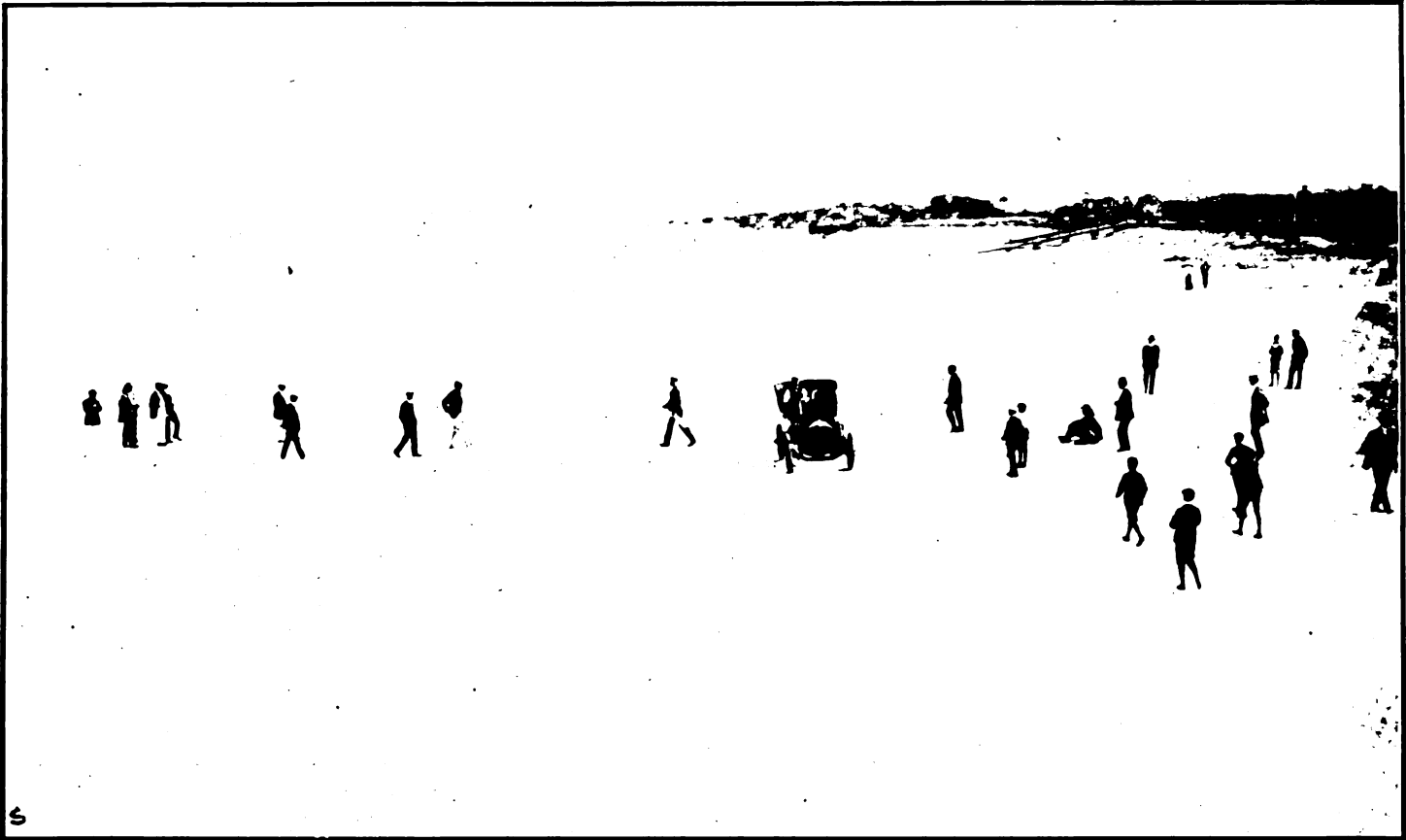
New Beach "Inaugurated" with Four Days' Racing—Good Going by Stock Cars.

The second automobile carnival to be held on a Florida beach this year, opened inauspiciously on Tuesday, April 10th, at Atlantic Beach, and closed Friday, the 13th, in the same manner. So far as accomplishing its object is concerned the meet was a perfect success, for it advertised the inter-

itors, or rather the spectators, but they took advantage of the long covered pier in front of the Hotel Continental, where the races started and finished. It was sapiently termed a "natural grandstand." Special trains brought many excursionists from other resorts. In all, seventeen events were run, and these stretched over four days. Joe Landis, of Atlanta, who drove S. C. Creelman's new 50 horsepower Thomas Flyer, relieved the monotony of the first two days of the carnival by making some very fast performances on Thursday and

crossed the tape first, with Covert second and Barber third. The time was not announced. A timing apparatus was provided for the races, but some times it failed to time; this was one instance.

The best contested event of the afternoon was the three-mile match race between S. G. Davison, in a 30 horsepower Peerless, and Willis A. Adriance, at the wheel of a 20 horsepower Stevens-Duryea. The two came down the stretch abreast for a flying start and kept in that position for the entire distance, the Peerless winning



GENERAL VIEW OF THE ATLANTIC-PABLO BEACH.

ests of the corporation that "soaks-it-tu" winter resorters who go to enjoy the Flower State's salubrious climate, and it discovered a natural beach speedway that rivals even the celebrated sand stretch at Ormond and Daytona. The shore line between Atlantic Beach and Pablo, about 20 miles from Jacksonville, affords a ten-mile stretch of natural speedway, wider than that at Ormond, and fully as fast. No record-breaking times were made because none but stock cars—their number could be counted on the fingers of both hands—took part in the events, and the contests were limited to cars belonging to persons who had wintered in Florida for at least three seasons. So, naturally, it was distinctively a Florida meet. The cars made some remarkable flights, however, two records for stock cars going by the boards.

No grandstand was provided for the vis-

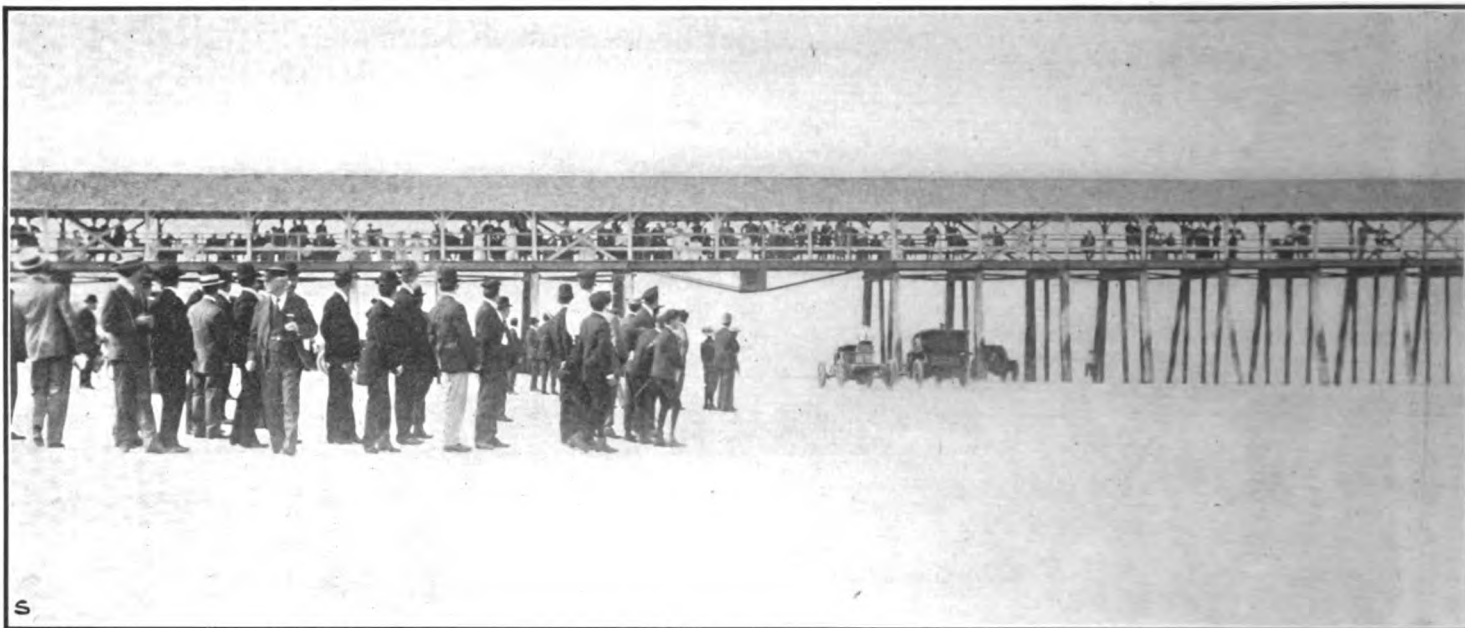
itors. In a five-mile handicap on Thursday, Landis covered the distance in 4 minutes 55 seconds, the fastest of the meet, and on the following day he drove one mile against time in 57½ seconds—both excellent performances. The honors of the meet seem to have been divided between two thirty horsepower Peerless cars and the aforementioned Thomas. Of the total number of automobile events—there were fifteen—the Peerless cars scored eight firsts, four seconds, one third and one fourth; the Thomas three firsts and two seconds, and a Stevens-Duryea three firsts, three seconds, one third and one fourth.

The ball was opened with a one mile motorcycle handicap, at 1:30 p. m., Tuesday, 10th inst. J. D. Hannon (Racycle) with 35 seconds handicap over J. P. Covert and Henry Oetgens on Indians, and A. Barber astride a Columbia, was never headed and

out by the narrow margin of one-fifth of a second.

Then came the event that was brimful of interest to the localists—a one-mile match race for the "championship of Florida and Georgia." It took only two heats to decide the so-called championship, C. O. Summers, in a 20 horsepower Franklin, winning both heats in runaway fashion. Summers won the first heat so easily that he was handicapped fifteen seconds in the second—imagine a handicap championship race, if you will—but even this weight did not seem to hinder him and it was announced that Georgia won the "championship."

The only other event run off on the first day was a ten-mile handicap, open to all classes, and this was won in clever fashion by S. G. Davison, in the Peerless, from scratch. His time was 12 minutes 7 seconds. W. A. Adriance, 20-horsepower Stevens-



THE PIER THAT FORMED THE "NATURAL GRAND STAND."

Duryea, with a lead of 1:30, finished second, and Summers, in the Franklin, was third.

The chief feature of Wednesday's racing was a remarkably fast five miles made by the 30 horsepower Peerless driven by S. G. Davison. His time was 5 minutes 8 seconds. This was accomplished in the race for the "Florida championship," in which there were four starters, namely, the Peerless, a Thomas, Stevens-Duryea and Maxwell. Adriance, with the Stevens-Duryea, had the pole and close beside him was Davison with the Peerless. Then came Joe Landis in the Thomas, and the Maxwell with W. R. Rannie up. Slowly but surely the Peerless cut down the slight lead the Stevens-Duryea had gained at the start and it finished half a minute ahead of the other. The Maxwell blew out a cylinder head and finished last, the Thomas taking third. The time, 5:08, was announced as a new record for stock cars.

Landis, in the Thomas, attempted to make a record for one mile, but the carburettor was not mixing properly and the best he could do for the distance was 1:28.

W. A. Adriance won the one mile "championship," Davison finishing second. Time, 1:14½. The one mile motorcycle race was captured by C. T. Anderson, on a 3 horsepower machine of his own construction.

Several novelty and gymkhana races completed the day's program.

Thursday was considered the best day of the meet, for Landis, the Georgia driver, succeeded in piloting the Thomas car over the tide-washed strand for miles in less than one minute. It was nearly five o'clock in the afternoon when the five mile handicap was called. Most of the spectators had gone back to their hotels, so they missed the best event of the carnival. The start was made from two miles below the Continental Hotel. Wheeler, in the Peer-

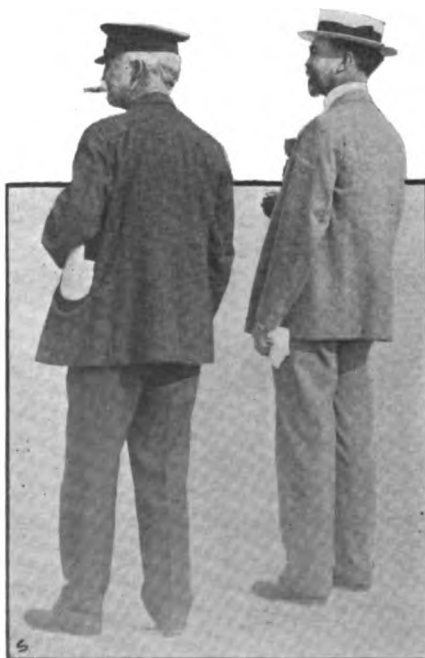
less, was the first to be waved off, and twenty seconds later Hutto, a native Floridian, in a car of his own construction, got off. McCant, in a Winton, started at the same time. Fifteen seconds elapsed before Wilkes opened the throttle of his Franklin. Forty-five seconds ticked off before Adriance, in the Stevens-Duryea, was given the signal to go, and half a minute after that Davison, in the Peerless, that had done so well, started. The Thomas, with the plucky Landis at the wheel, was the last to get away, and the way it seemed to eat up the space was surprising. Just below the Hotel Continental a large hound crossed the path of the oncoming car. Landis was doing miles in less than a minute and took just one instant to decide his course. To turn

out meant probable death and the wrecking of a valuable car, and to run over the dog also was dangerous. He did not hesitate, however, and a second later hints of frankfurters were thrown to the four winds. At one mile to go Landis had passed two cars and was making a brilliant effort to cut down the leads of the remainder. In the last mile Davison crept past Adriance. Landis passed the Stevens-Duryea and slowly gained on the Peerless. Landis and Davison fought it out together for the last quarter, as Wheeler's Peerless had a lead too great to overcome and it finished first, winning the trophy. Landis beat out the other Peerless by less than one second, covering the five miles from scratch in the fast time of 4:55, beating the record made the previous day.

W. A. Adriance won the ten mile handicap, with a lead of two minutes and 40 seconds, with Davison, from the 50 second mark, second. This was uninteresting as several misunderstandings marred the start. The turning flag was placed half a mile too far, so that the cars ran eleven miles instead of the intended ten.

It took three heats to decide the three mile match race between Landis, Davison and Adriance. Landis captured the first heat, while Davison came over the line winner in the second. The Thomas driver won the third and final. The Stevens-Duryea ran last in each heat.

Only three events amused the watchers on Friday, the concluding day of the carnival, and these were not above the ordinary. The only thing that served to relieve the monotony was the record breaking flight of the stock Thomas in the mile time trials, and this was accomplished under difficulties. On its first trial the timing apparatus refused to work and Landis took three passengers along. They held stop-



TWO OF THE FLORIDA OFFICIALS.

watches and snapped the mile at 58 seconds. Later, when the electric apparatus was put into commission, Landis made an official trial in 57 $\frac{3}{4}$ seconds, the best time for that distance that had yet been made, and which was announced as a stock car record.

Wheeler's Peerless added two more trophies to its bag by winning the other events, both handicaps, at one and five miles respectively. The time of the five-mile was 8:50 and Wheeler started from 2 minutes. J. McCant, in a Winton, was second and the little Panhard, by Devantery, finished third. The officials put Wheeler on scratch in the one mile race but the Peerless won it just the same, it taking three heats to

Wheeler, 24 horsepower Peerless (1:50) fourth. Time, 12:07.

Wednesday — April 11.

One mile motorcycle handicap—First heat—C. T. Anderson, 3 horsepower Special (0:10) first; J. P. Covert, 2 $\frac{1}{4}$ horsepower Indian (scratch) second; A. Barber, 1 $\frac{3}{4}$ horsepower Indian (0:20) third. Time not given. Second heat—C. T. Anderson, 3 horsepower Special (scratch) first; A. Barber, 1 $\frac{3}{4}$ horsepower Indian (0:20) second; J. P. Covert, 2 $\frac{1}{4}$ Indian (20) third. Times, 1:36 $\frac{1}{2}$, 2:05 and 2:07 $\frac{3}{4}$.

One mile for Florida championship—W. A. Adriance, 20 horsepower Stevens-Duryea, first; S. G. Davison, 30 horsepower

Crosby trophy—F. C. Wheeler, 30 horsepower Peerless (2:20) first; Joe Landis, 50 horsepower Thomas (scratch) second; S. G. Davison, 30 horsepower Peerless (0:30) third; W. A. Adriance, 20 horsepower Stevens-Duryea (1:00) fourth; J. Wilkes, 20 horsepower Franklin (1:45) fifth. Time, 7:02. Fastest time made by Landis in 4:55.

Ten mile handicap for Windsor trophy—W. A. Adriance, 20 horsepower Stevens-Duryea (2:40) first; S. G. Davison, 30 horsepower Peerless (0:50) second. Times, Adriance, 15:20 $\frac{1}{2}$ (corrected, 13:10 $\frac{1}{2}$); Davison, 16:00 (corrected, 12:10).

Three mile match in one mile heats—First heat—Joe Landis, 50 horsepower Thomas, first; S. G. Davison, 30 horsepower Peerless, second; W. A. Adriance, 20 horsepower Stevens-Duryea, third. Times, 1:04 $\frac{3}{4}$ and 1:04 $\frac{3}{4}$. Second heat—S. G. Davison, 30 horsepower Peerless, first; Joe Landis, 50 horsepower Thomas, second; W. A. Adriance, 20 horsepower Stevens-Duryea, third. Times, 1:03 $\frac{3}{4}$ and 1:05 $\frac{3}{4}$. Third heat—Joe Landis, 50 horsepower Thomas, first; S. G. Davison, 30 horsepower Peerless, second; W. A. Adriance, 20 horsepower Stevens-Duryea, third. Times, 1:05 and 1:05 $\frac{3}{4}$.

Friday — April 13.

One mile against time—Joe Landis, 50 horsepower Peerless. Time, 0:57 $\frac{2}{3}$.

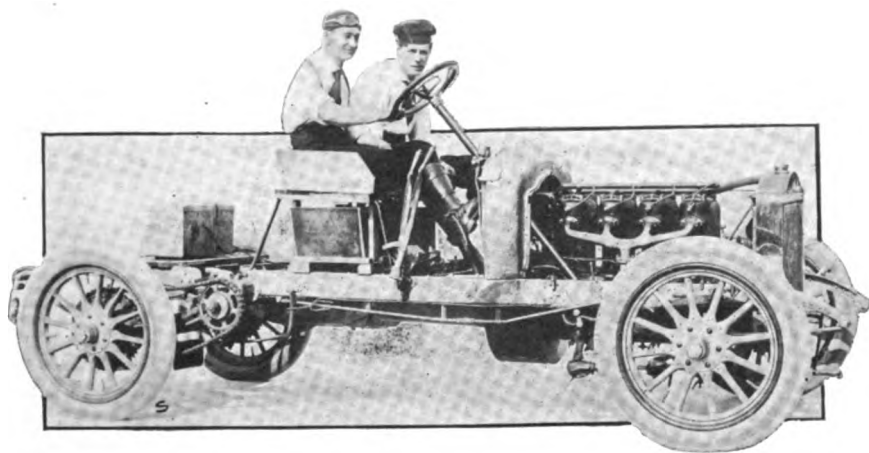
Five mile handicap—F. G. Wheeler, 30 horsepower Peerless (2:00) first; J. McCant, Winton (2:15) second; Joe Devantery, 12 horsepower Panhard (2:40) third. Time, 8:50.

One mile handicap—First heat—Won by F. G. Wheeler, 30 horsepower Peerless (scratch). Time, 1:46 $\frac{3}{4}$. Second heat—Won by Dr. Stinson, Winton, (0:2 $\frac{1}{2}$). Time, 1:56. Third and final heat won by Wheeler in 1:55 $\frac{3}{4}$.

Free Alcohol Bill Passes House.

By a vote that plainly showed that it was merely "going through the motions," the House passed the bill exempting industrial alcohol from taxation on Monday last with a total of 224 yeas against 7 nays. By the time the bill got to the floor of the House for a vote, all opposition had faded away completely; even Representative Dalzell, who has been the bill's chief opponent all along, was not in evidence.

It was submitted to the Senate Committee on Finance yesterday and has been put down for a hearing before that body on Tuesday next. In spite of the fact that the House Committee held exhaustive hearings and investigated every aspect of the situation, it is the intention of the Senate to do likewise and more witnesses will be called. This is explained by a statement to the effect that the House did not undertake to investigate the phases of the matter that will form the subject of the Senate inquiry. Incidentally, the wood alcohol lobby has not ceased its opposition to the bill.



JOS. LANDIS, THE "BIGGEST PEBBLE ON THE BEACH."

decide. The second heat was won by the Winton.

The summary of each day's events follows:

Tuesday — April 10.

One mile motorcycle handicap—J. N. Hannon, Racycle (0:35) first; J. P. Covert, 2 $\frac{1}{4}$ horsepower Indian (scratch), second; A. Barber, 2 $\frac{3}{4}$ horsepower Columbia (scratch), third; Henry Oetgens, 1 $\frac{3}{4}$ horsepower Indian (scratch) fourth. Time not given.

Three mile match between S. G. Davison, 30 horsepower Peerless, and Willis Adriance, 20 horsepower Stevens-Duryea—Won by Davison. Time, 3:42 $\frac{1}{2}$.

One mile interstate match (Georgia vs. Florida)—First heat—C. O. Summers, 20 horsepower Franklin (Georgia) first; Joseph Devantery, 12 horsepower Panhard (Florida) second. Times, 1:38 and 1:52. Second heat—C. O. Summers, 20 horsepower Franklin (scratch), first; J. Devantery, 12 horsepower Panhard (0:15), second. Times, 1:49 and 2:06 $\frac{1}{2}$. Third heat not necessary.

Ten mile handicap, free-for-all—S. G. Davison, 30 horsepower Peerless (scratch) first; W. A. Adriance, 20 horsepower Stevens-Duryea (1:30) second; C. O. Summers, 20 horsepower Franklin (1:40) third; F. C.

Peerless, second; Roy Kenyon, 18 horsepower White, third. Time, 1:14 $\frac{3}{4}$.

One mile against time—Joseph Landis, 50 horsepower stripped Thomas. Time, 1:28.

Five miles for Florida championship—S. G. Davison, 30 horsepower Peerless, first; W. A. Adriance, 20 horsepower Stevens-Duryea, second; Joseph Landis, 50 horsepower Thomas, third; W. R. Rannie, 18 horsepower Maxwell, fourth. Times, 5:08, 5:38 and 6:38.

Half mile novelty race—S. G. Davison, 30 horsepower Peerless, first. Time, 2:03 Also ran—Henry Oetgen, 20 horsepower Franklin; Roy Kenyon, 18 horsepower White, and W. A. Adriance, 20 horsepower Stevens-Duryea.

Half mile obstacle—W. A. Adriance, 20 horsepower Stevens-Duryea, first; S. G. Davison, 30 horsepower Peerless, second. Also ran—Roy Kenyon, 18 horsepower White. Franklin burst tire.

Half mile gymkhana for ladies—Mrs. P. E. Allison, 30 horsepower Peerless, first; Mrs. W. W. Adriance, 20 horsepower Stevens-Duryea, second; Mrs. H. E. Bemis, 18 horsepower White, third; Miss Myers, 18 horsepower White, fourth.

Thursday — April 12.

Five mile handicap for the Greenleaf and

HOW DAIMLER DOES IT.

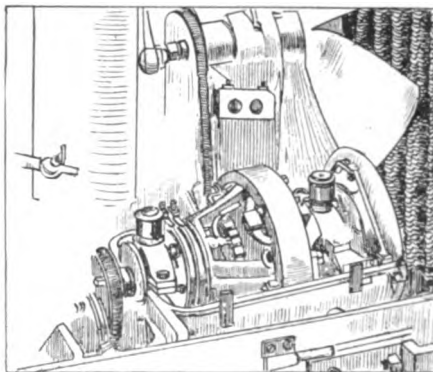
Evolves a Self-Charging Set, but Departs from Path Trod by Apple.

To the motorist who was an electrician before he took up the car, as well as to all those who have a leaning in this direction, it has always seemed to be an anomalous state of affairs that the small direct current dynamo and the accumulator did not sooner establish themselves on the automobile, particularly in the combined form—that is, the self-contained charging set. So far as the theory of the thing was concerned, nothing seemed easier than the installation and successful operation of such a means of providing a generous and constant supply of current for ignition purposes—and it was, so far as the installation was concerned; its operation was a totally different story and probably kept the recording angel busy for some time.

The first small dynamos employed for the purpose were little better than toys. Some of them had proved satisfactory in a service the demands of which are far less exacting than those of the automobile, the stationary engine, with its low and constant speed, but their transfer to the car at once showed them to be totally unfit both mechanically and electrically. They were not built to withstand the vibration and racking to which they were subjected and the first few violent fluctuations of speed on the part of the motor usually ended their career by burning out the armature, if not the entire machine. The first attempts to devise a satisfactory governor to protect the generator against such mishaps as this fell far short of the requirements and the machines continued to burn out in spite of the precaution. To the builders of the Apple ignition apparatus in this country for their perseverance in sticking to this form of apparatus through thick and thin, is due its attainment to the state in which the present day finds it.

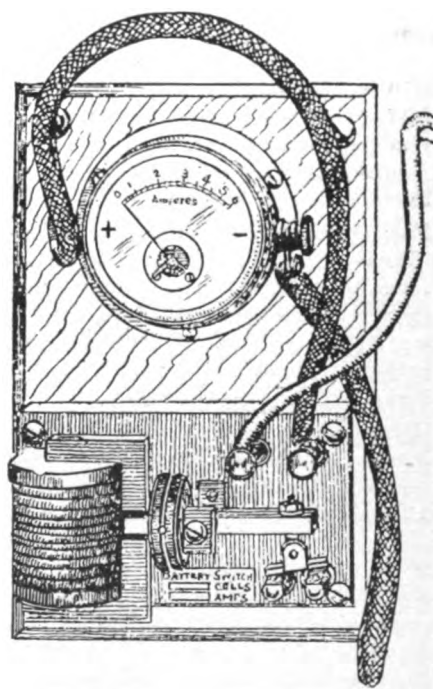
On the other side, the makers of the Daimler cars have been experimenting with the same thing for some time past, though working along different and very novel lines. The invention is said to have been pretty thoroughly tested out in service during the past year or more and has now reached a point in its development where it is ready for the market. The generator itself is of the multipolar type which is unusual for a dynamo for this service, but as will be noticed from the sketch showing it in position on the car it is very much larger than the machines generally made for the purpose. What is more unusual and quite contrary to general practice, and this in fact is the piece de resistance of the designer, is the provision made for maintaining a revolutionary movement of the fields as well as the armature. The fields are of

the usual circular type common to multipolar generators, but instead of being rigidly fastened are mounted on a spider supported on a bearing which is nothing more or less than the armature shaft itself. A brake drum is secured to the armature shaft also and upon its periphery are arranged a series of brake blocks,



the tension of which may be readily adjusted to a nicety by a set screw carried by the band and passing through the aluminum housing which encases the apparatus.

The device takes the place of a governor and as its action is dependent entirely upon the electrical output of the machine, once adjusted, it is claimed by the makers to be impossible for the speed set to be exceeded and in consequence for the dynamo itself to suffer through over-



speeding. Its operation will be clear when it is stated that with the band under no tension the armature will revolve with the fields, which are turned by the power through belts and pulleys, and at practically the same speed. In such a case, as the armature cannot pass the fields, the magnetic lines of force are not cut by it and no current is generated. With the machine under

way in this condition, if an ammeter be put in the circuit and the brake band on the armature shaft be tightened almost imperceptibly, the output of current will visibly increase until, the band screwed down hard so that the armature is held absolutely stationary, the machine becomes the same as one of the ordinary type and delivers its maximum output. The point in the speed at which the armature will start to slip and follow the field, owing to the greatly increased magnetic drag of the latter, is thus dependent upon the tension of the brake band which may readily be adjusted to suit the circumstances.

An automatic cut-out is provided in addition in order to prevent the accumulators from discharging through the machine when the latter is at rest or when its speed falls below a determined point, both the accumulators and the remainder of the system which is fed directly from the generator when the car is under way being connected up in parallel as is customary. The automatic cut out which throws the accumulators into the circuit the moment the output of the machine exceeds a certain point and cuts them out again when it drops below the voltage of the battery, is of the usual type in which a solenoid acts against gravity or a spring controlled armature forming the contacts. As soon as the voltage reaches the proper point, this armature is attracted, closing the circuit and drops away again as soon as its weight or the strength of its spring becomes too great for the power developed by the magnet with the weakened current.

The details of the generator will be clear from the illustration, the brake band comprising its chief feature being at the right while at the extreme left will be noted a pair of collector rings and brushes, necessitated by the movement of the field about its axis as either solid or flexible connections between it and the armature would interfere with its revolving. The automatic cut-out is combined with a switch for diverting the current from the generator or the battery into the ignition system or lighting the lamps of the car, and also with a volt-ammeter, all of which are in a compact case mounted on the dashboard.

When the Motor Stops.

When, for some unknown reason, a motor has stopped, it not infrequently happens that the cause of the "panne" is removed at the first trial, especially when the fault lies with the ignition system. But even then, there may be some difficulty in getting an explosion, for the reason that in his eagerness to flood the carburetter, the operator overdoes the matter and gets too rich a mixture in the cylinders. When this happens, starting may not be possible until the pet cocks have been opened and the motor "ventilated" by giving it a few turns. Of course, gasolene is an essential to the action of the machine, but not too much of it.

TO INCREASE CZARLIKE POWER

Bill Pending Gives Massachusetts Commission Greater Scope—Favorably Reported.

Although the existing automobile law clothes the Massachusetts Highway Commissioners with authority such as is enjoyed only by the Czar of Russia and other despots, the members apparently fear that there are some small loopholes that may be uncovered. Accordingly they are in a fair way of being empowered to make such other laws—rules is the milder term used—as suits their own sweet wills whenever the spirit moves them to do so. The first move in that direction was made on Tuesday last, when the Committee on Roads and Bridges of the State legislature, reported the following bill:

Section 1. The Massachusetts Highway Commission may from time to time prepare rules and regulations governing the use and operation of automobiles and motorcycles. Said rules and regulations shall be in addition to any rules and regulations already written in the certificates and licenses issued by said commission under authority of Chapter 473 of the Acts of 1903 and acts in amendment thereof. Said Commission may from time to time alter, rescind, amend or add to any rules and regulations previously made by it. Such rules and regulations and any changes therein shall take effect only when approved by the governor and council.

Section 2. Said commission shall publish the rules and regulations made and approved under authority of this act in at least two newspapers printed and published in each county of the State, and such publication shall be sufficient notice to all persons. The sworn certificate of any member of said Commission or its secretary that said rules and regulations have been published as herein provided shall be prima facie evidence thereof. A copy of said rules and regulations attested by any member of said commission or by its secretary shall be prima facie evidence that said rules and regulations have been made by said commission and approved by the governor and council as provided by law.

Section 3. Any person convicted of operating an automobile or motorcycle in violation of any rule or regulation made under authority of this act may be punished by a fine not exceeding twenty-five dollars for a first offense, not exceeding fifty dollars for a second offense, and not exceeding one hundred dollars for subsequent offenses.

Section 4. This act shall not be construed as giving to the Massachusetts Highway Commission the power to regulate the speeds at which motor vehicles may be operated on the public ways, or to affect the power, as now provided by law, of the Metropolitan Park Commission to make rules and regulations governing the use of automobiles and motorcycles in lanes, road-

ways and parkways in their care and control.

Crop of Cup Cars Increasing.

Although the entry blanks have not been issued and formal entries are therefore not yet possible, there is no longer doubt that the eliminating trial to decide the make-up of the American team in the Vanderbilt cup race will be of keenest interest.

The E. R. Thomas Motor Co. had long since let it be known that three Thomas cars would be entered and it was equally well known that the Pope interests would enter a Pope-Toledo, while the Maxwell-Briscoe Motor Co. also have a cup car in prospect. Last week, however, the biggest surprise of all was let out of the box when the Olds Motor Works announced that Engineer Howard Coffin is designing an Oldsmobile which will be a candidate for the American team. It was a big surprise because the Olds people have paid practically no heed to racing and none even remotely suspected a move of the sort on their part. The Olds cup racer will be driven by Ernest Keeler. The Matheson Co. likewise have announced their intention of again entering one of their cars, with Ralph Mongini as the driver.

A. A. A. and F. A. M. Close a Compact.

Hereafter an automobile driver who offends the racing rules of the American Automobile Association will not be able to bestride a two-wheeler and compete as a motorcyclist, or vice versa, as has been done on several occasions, more particularly in the West. The A. A. A. and the Federation of American Motorcyclists have entered into a compact to respect and enforce suspensions made by each other, which will considerably restrict the antics of offenders who would play on both sides of the fence. As the F. A. M. has similar alliances with the Amateur Athletic Union and the National Cycling Association, its arrangement with the A. A. A. will be, indeed, even more far reaching than appears on the surface.

Massachusetts Re-elects Old Officers.

At the last meeting of the Massachusetts State Automobile Association, Elliot C. Lee was re-elected president, Franklin Weston, vice-president and J. C. Kerrison, secretary-treasurer. L. R. Speare, J. P. Coughlin and W. H. Chase were chosen chairmen respectively of the legislative, good roads and membership committees. The association will co-operate with the American Automobile Association in erecting signboards throughout New England this summer.

For the Troubled American Abroad.

Major F. A. Mahan, 51 Avenue Montaigne, Paris, has been appointed attorney in France for the Automobile Club of America. If necessity arises, the Major will render legal advice and assistance—for a reasonable fee—to A. C. A. members touring Europe.

OLDFIELD SHOWS IN TEXAS

Wins "Match Race" in Two Straight Heats —His "Rival" too Fast as a Parader.

Despite the fact that Barney Oldfield did not break any records at the race meet at Houston, Texas, on Wednesday of last week, and although Paul Albert, the "phenomenal German champion driver," did not win the thousand dollars (a product of Manager Pickins's fertile imagination) for beating the American champion, the meet did not lack for excitement, particularly for Albert. Just after his race with Oldfield, when several persons were congratulating him for his good showing, Albert was served with a warrant for exceeding the speed limits of the city of Houston the night before.

It seems that about a year ago the father of a young man named E. Pennington was run down by an automobile. Since that time young Pennington has sworn summary vengeance against any and all automobilists he detects going faster than the prescribed six miles an hour. Many have had to pay fines since that time. On Tuesday night the motorists of Houston held a parade and it was led by Albert, the racing partner of Oldfield. Pennington did not recognize any of the other paraders, but he did recognize the stripped white car driven by Albert and he got out a warrant for him. It cost "Herr" Albert \$12.45 in police court the following day, whereat the "German champion" waxed exceedingly sore, and swore never again to race in Houston.

The races on the half-mile driving track on Wednesday were interesting and exciting enough to suit the native Texans. Long before the first event was called every available seat in the two grandstands was occupied and hundreds lined the railings. The crowd was estimated at anywhere from 3,000 to twice that number.

Oldfield won the first heat of his three-mile match race against Albert in 4:10½. The Peerless driver also came in first in the second heat, his time being 4:17½. When Oldfield and Albert raced in Birmingham, Ala., two weeks ago, Albert was credited with driving a Mercedes. It transpires, however, that he sits at the wheel of a stripped Peerless. In a two-mile handicap Oldfield won out in 4:00¾, while T. J. Anderson, a local driver, finished second in 4:15¾. Oldfield drove one mile against time in 1:49¾.

In the three and one-quarter mile event for Cadillac cars, the winner was Samuel Bering. He covered the seven circuits of the track in 5 minutes 28 seconds. John Foley scored first in the two mile novelty and T. J. Anderson was given second. Time, 5:46. Several bicycle events completed the programme.

OBTAINING RIGHT OF WAY

Practices of the Gentle Farmer that Make Establishment of a Motor Line Doubtful.

For fifty years have the residents of Shelbyville and Bethel, in Missouri, been praying for a railroad or some means of transportation so that the people could get somewheres in bad weather. Recently when some promoters sought to answer their prayers by the establishment of a motor line everybody was happy in the thought that at last their cherished hopes would become a realization. Others were jubilant for a different reason—it would give them a chance to realize a little pocket money by the bold hold-up game.

"Nothing easier in the world than securing the right of way for a motor line, as it will benefit the great public," said Captain Bailey, the chief engineer of the road, when he set bravely forth with the paper to secure the necessary signatures. But the Captain found, as it has been the lot of other railroad companies to discover, that the prices of land along the proposed automobile railroad had suddenly taken a tendency to soar skyward.

One man near Shelbyville wanted \$100 an acre for his holdings. When he found that the company probably would pay this amount he demanded a seven-strand fence of strong barbed wire. Then in view of the "bargain" the motor line was getting, demanded that it ought to give him and his family passes for five years. Without this concession, he would not deed the right of way.

"You can well imagine what a proviso like that means," said Engineer Captain Bailey. "This farmer has several grown children; some will marry and live with the old folks. They will be legitimate members of his family. Before five years there is a probability that this family might fill an entire car. If we give this man a five-year pass for himself and family, other people would make the same demand and we would have the experience of running our cars for the first five years simply for the pleasure of those living along the line."

In view of this, the La Belle-Shelbina motor line is in danger of not being put into operation.

Southern Motorists Form Federation.

At a meeting of delegates, representing the various automobile clubs and good road workers in the South, held at Atlantic Beach, Florida, on Thursday last, the Southern Motorists' Federation sprang into being. The objects of the organization will be the furtherance of good road building in the South and to push the project of a main trunk road from Richmond, Va., to Jacksonville, Fla. These officers were elected: President, Benjamin L. Jones, President Macon Automobile Club; vice-president, Frank C. Beatty, president Savannah Automobile Club; second vice-president, Colonel Joseph P. Bryan; third vice-president,

George W. Vanderbilt; secretary, W. R. Rannlee, Jackson Automobile and Motor Boat Club; treasurer, Edward Inman, and directors—George W. Wilson, Clark Howdell, J. E. Estell, Major W. A. Hemphill, General Gilmer, John B. Parkinson, W. A. McWilliams, Thomas W. Layless, John W. Anderson, Guy Jordan, Charles W. Murray, W. P. Brownlow and R. S. Munger.

The Tale of a Yellow Dog.

Because a small yellow dog—not the insurance variety, just the common garden type of homeless canine—happened to be passing, and was offered a drink of gasoline by the chauffeur who stopped to replenish the car's tank, a bright scribe for a more or less yellow daily, accuses the animal of having contracted a gasoline jag and starting forth on a rampage on that account. "Deceived by the color of the liquid, the dog lapped up several mouthfuls before realizing the difference, and the last seen of the creature it was barking down the street like an automobile just getting under way," says this wielder of the imaginative pen. The fact remains that the animal did run amuck and bite several persons, but the "accident" is one that only a State commission could do justice to in recording.

Here's the Real Automobile Play.

It was not long after the automobile became an actual, every day reality that it found its place among the other stage properties behind the footlights, and the early stage automobiles were as weirdly constructed and as prone to break down unexpectedly as their prototypes of the road. But even in plays of which it has actually formed the foundation, the car itself has seldom played anything higher than the role of a piece of mechanical property. Now an original Frenchman has concocted a play which is automobile, first, last and all the time, even to the title, which is "40 Horsepower."

Toledo Tourists Choose Officers.

The Toledo (Ohio) Automobile Touring Co. has elected these officers and directors: President, John Stollberg; vice-president, Louis E. Krieger; secretary-treasurer, Frank G. Crane; directors—John Stollberg, John C. Hildeberg, Milton Taylor, Louis E. Krieger and U. G. Denman.

Horse-Motor Show for Hospital.

Gradually the horsemen throughout the country are becoming reconciled to the automobile. Advices from Rutland, Vt., announce the fact that the horsemen of that place will give an interstate horse and automobile show on the fair grounds, June 5 and 6, for the benefit of a local hospital.

"The A. B. C. of Electricity" will aid you in understanding many things about motors that may now seem hard of understanding. Price, 50c. The Motor World Publishing Co., 154 Nassau Street, New York City. ***

NEW JERSEY BILL A LAW

Senate Passes Amendments and Governor Promptly Signs the Frelinghuysen Measure.

Evidently Governor Edward Casper Stokes of New Jersey did not dare trust himself in the matter of the Frelinghuysen automobile bill. As told in the Motor World of last week, the Assembly tinkered with the measure and finally passed it at midnight, after making a dozen amendments. Then the obnoxious measure was sent to the Senate for ratification of the amendments and it was passed on Thursday of last week.

If a bill which has been passed by the New Jersey State Legislature is not signed by the Governor within thirty days, it does not become a law. Last year a bill to regulate the running of automobiles was passed and was not signed until the eleventh hour. Evidently Governor Stokes did not want to give the automobilists a chance to protest against his affixing the official seal—he it was who inspired the introduction of the measure—for after it was passed by the Senate last Thursday, the Governor signed it on the following day, thereby making it a law. The amended bill has not been put into printed form as yet.

L'Hommedieu Bill Passes the Senate.

Senator Irving L'Hommedieu's measure imposing a State tax of one dollar per year and an additional tax of one dollar for every 500 pounds' weight of each automobile owned in the State of New York was passed by the Senate last week by a vote of 32 to 12. It now goes to the Assembly for passage.

The representatives of the automobile associations who endorsed the measure are now beating the air and threatening to oppose the bill, because the amendment providing that all fines collected from motorists be applied to the maintenance and repair of good roads, which, it is said, was promised by Senator L'Hommedieu, was not made. The outcry also is being made that the term "tax" is used in the text of the measure instead of the words "registration fee."

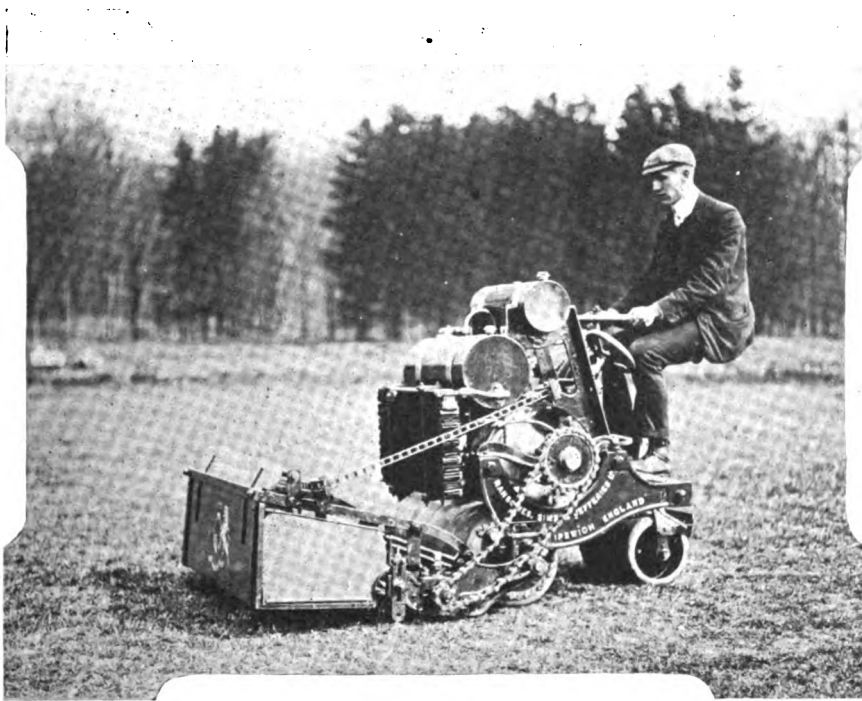
Four Cars Stolen in one Week.

Denver, Col., is suffering from a plague of motor kleptomaniacism. During last week four cars were stolen which have not yet been recovered, while various other disappearances were cleared up by the local automobile dealers. Frequently the thieves confine their purloining to electric cars which are run until the power gives out and then abandoned. The Colorado Automobilists' Association has employed detectives to run down the worrisome thieves. There is a standing reward of \$50 for every person found guilty of tampering with or running an automobile who does not own or have charge of it.

GOOD WORK ON THE GRASS

This Lawn Mower has Cut 17 Acres in 10 Hours—How it Operates.

Results are what count in every comparison of the motor driven vehicle with the horse and in few instances are they more favorable than the case of the motor lawn mower. Considerably more attention has been paid to the development of this application of the internal combustion motor on the other side than here with resulting advantages over the horse-drawn kind that more than justify the change. Ransomes, Simms & Jeffries, Ltd., are an English firm



that have made a specialty of building this type of mower and in a recent trial one of their machines mowed 17 acres of a polo ground in the course of 10 hours.

The machines are built in three sizes, with 24, 30, and 42 inch cutters, the motors being of $2\frac{3}{4}$, $3\frac{1}{2}$ and 6 horsepower respectively, the smallest having an air-cooled engine and the other two water-cooled. The valves are mechanically operated from a single cam-shaft to which the gear pump is also attached, and from which the high tension magneto used for ignition is driven by sprocket and chains. A planetary reducing gear is employed with a final drive by chains both to the roller and cutters. The steering is done by shifting the small rear roller over which the driver is seated within easy reach of all the controls. In addition to cutting the grass, the machine gathers it in the box just in front of the cutters as shown by the photograph which was taken during the course of the trials mentioned. It also has a convenient chain-operated arrangement by means of which the grass collected may

be dumped without stopping the machine. By removing the fore carriage carrying the cutter and grass box the machine is immediately converted into a roller.

New York's Forty Cars.

According to present indications, before the first of June, the municipality of Greater New York will be the proud possessor of no less than forty motor cars, which will be used by its heads of departments; and by estimate, this will represent a total outlay of some \$125,000 in rolling stock, and will require an annual expenditure of \$50,000 for up-keep, and \$12,000 for attendance. Unfortunately for the cause of the automobile, the intrinsic value of this equipment in

the saving of the precious time of the over-worked city officials and convenience to them in carrying on their work, cannot be expressed in dollars and cents. So that while the debit side of the account is painted in bright red colors by those smug politicians whose tastes run in other directions, the credit column is blank, except when the commissioners themselves and their deputies come up before the Board of Estimate with eager demands for more.

Garage for the Rockaways.

To fill a long felt want as regards automobile accommodations in the Rockaways, Long Island, a large garage in Far Rockaway is now under course of construction for Guy Mott. The garage will occupy a site on Central avenue near Cleveland and will have a frontage of 50 feet and a depth of 100 feet and will be two and one-half stories high. The frame work will be steel and the floors and walls concrete. The building is to be finished by June 15 and will cost \$18,000.

WANT SOME ELECTRIC WATER?

You'll have to Send to Italy for it—But Tame Says it's Great Stuff.

In a comparatively short time, when the most recent invention in the way of the accumulation of electrical energy "has been perfected," it will be possible to buy the "juice" by the quart or pint, to store it in barrels in the back yard, and to replenish the batteries of electric vehicles very much the same way that the tanks of gasoline machines are now refilled—through a funnel. At least, this will all come true if the invention of Adolphe Tame, the Italian electrician who claims to have invented a method of electrifying water so that it can be used in the same general way as a storage battery now is, proves to be all that it is said to be.

Tame, the director of the electrical company, "La Gada," at Oneglia, in Liguria, Italy, who has been carrying on his researches for the last seven years, has announced that he has at length succeeded, and that by the use of his special form of container, in which, of course, the virtue of the method consists, it is possible to store up electrical energy or its equivalent, and to reclaim it afterward in the ordinary manner. According to the inventor, a 20-horsepower car carrying twenty quarts of the electrified water, can make a run of ten hours' duration at a cost of hardly more than two cents per kilowatt hour. Moreover, it is claimed that the efficiency of the process is very high, only about 1.75 per cent of the energy being lost in the transformation.

Buenos Ayres a Big Market.

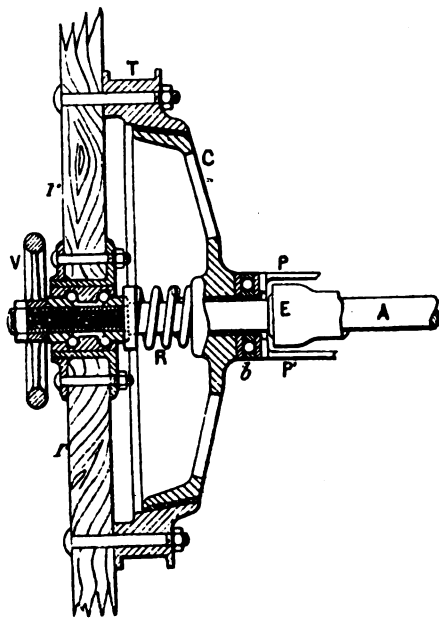
More than one thousand motor vehicles are said to be in present use in Buenos Ayres, the advantages of motor traction appealing readily to the Argentine people. Most of the public officials own cars, it is said, the President of the Republic heading the list. Three-quarters of the machines are of Continental manufacture, and of these the greater majority are French. Commercial vehicles are being introduced there, as they are in all countries just now, and it is said that seven or eight will soon be in active use. The good roads movement is spreading at the same time, which makes the outlook all the more favorable, especially as the Minister of Public Works has recently set aside a fund of \$200,000 for highway improvement.

A change has been made in the sales department of the Frayer-Miller Motor Car Co., of this city. Herbert K. Levick, formerly of the Central Automobile Company, has become sales manager for the New York branch.

ELIMINATES DIFFERENTIAL

How the Massot System Serves that Purpose—Free-wheel Idea Involved.

One of the most novel propositions in connection with the final transmission of the motive power of an automobile from the power plant to the driving wheels which has been recorded for some time, is the Massot system, the invention of a Frenchman, who has contrived a free-wheel arrangement by means of which a true live axle is made to run freely within bearings



in each of the rear wheels, or drive them, as the case may be. The scheme involves the introduction of no new elements which have not already been applied in motor propulsion, and besides, seems likely to prove reasonably efficient, whatever may be the degree of its desirability as applied to a car of the common type.

As will be seen from the accompanying illustration, the axle A carries at either end a cone clutch C of the ordinary leather-faced type, which is held in engagement with its seat, the latter being bolted to the spokes by means of the boss T. The clutch is splined to the axle stub in the usual manner, and is seated by the spring R, in order to secure the requisite driving power. By means of the rods P-P, acting through the ball thrust bearing b, it may be disengaged upon occasion, when the axle runs free of the wheels in a double ball bearing set within the hub. The control of the system comprises two foot pedals instead of the single one ordinarily employed, one having the mastery over each of the two driving wheels. In addition to these, the emergency brake lever, controls both clutches simultaneously, their disengagement being effected by its initial movement, while further movement applies the brakes which encircle the drums T.

In a measure, the device is intended to do away with the differential, since on rounding curves at high speed, it is possible to disengage one side of the drive, leaving it perfectly free to assume whatever rate may be demanded by the radius of curvature, while the driving effort is derived solely from the other side. Also, when starting on curves, by slipping in one clutch before the other, and thus bringing the bulk of the power to bear upon the outside of the turn, a better theoretical driving effect may be produced, than in the ordinary way. At the same time, when from any cause, one side of the drive has been disabled, it is, of course, possible to free it, the wheel then running as easily as do the steering pair, and the load falling upon the other side.

One particular advantage of the arrangement, which is at once apparent, is that as the power is applied to the load directly, and not through the intermediary of any mechanism whatever, the result of heavy shocks due either to a sudden application of the clutches, or through the encountering of any obstruction on the road, is that a yielding of the drive due the slipping of the leathers, will occur, there being little or no danger of the stripping of gears or to the breaking or springing of driving shafts as is not infrequently done under harsh exigencies with the more ordinary methods of final connection.

Concerning Cylinder Expansion.

Unequal degrees of expansion set up on the inner and outer faces of the cylinders as well as in the cylinder proper and its water jacket, owing to the great difference in temperature between those parts directly subject to the influences of combination and those distant from it, seems from a theoretical point of view to constitute a factor that should sooner or later prove the undoing of the integrally cast cylinder and jacket. But experience has proved conclusively that this is but another instance in which theory and practice are widely separated. Independent water jackets are, however, employed in various instances to counteract this force and a more novel expedient is embodied in the engine of the Austin car. The bottom of the water jacket is left open and between this and the cylinder proper is screwed a cast iron ring, having recessed on its inner face a washer of a special composition, which causes it to expand as it is forced into position. While making a perfectly water tight joint, it is also claimed to permit the cylinder to expand and contract unhampered.

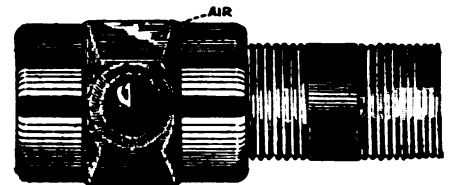
According to a dispatch from Johnstown, Pa., a large drop steel forging plant is to be established there. Among those mentioned as being interested in the venture are John H. Waters, R. Purlie Smith, Curt G. Campbell, James M. Shumaker, E. B. Entwistle, W. Milton Brown, George M. Wertz and John M. Rose.

MAKES HORNS MUSICAL

Simple Device that Accomplishes that Desirable End—Acts Like a Bunsen Burner.

In all the varied ramifications of the automobile accessory business, probably nothing has passed through a more vigorous infancy, nor promised more in the way of a healthy maturity than that has that device by means of which the otherwise useless force of the motor exhaust is diverted to a good use and made to produce a musical tone.

The simple attachment of a horn of the organ pipe variety to the exhaust is not all that is necessary, however, and it has been found that where this alone is done, there is a tendency to screeching and overtone, which is by no means desirable. The tendency to this is brought about by the



varying pressure in the exhaust, and the fact that the horn itself is not responsive to a wide range of pressures. In an effort to avoid this, the New Jersey Tube Company, of Newark, has just brought out a secondary appliance which may be attached to any horn of the type and which is intended to soften the note, rendering it pure and musical at all times. It is called an air regulating valve, and acts on the well-known principle of the Bunsen burner.

The valve, which is interted in the pipe line just in front of the horn, consists of a fitting containing a jet through which the exhaust rushes with great velocity at the same time, by its energy, drawing a portion of pure air through a couple of suitable openings at the side, with the result that the volume of the blast is increased, and by the same token, its pressure is diminished. It is fitted to all the company's Exhaust horns without extra charge, is said to give a fine effect and, as applied to other makes, it works equally as well.

If a Ball Should Break.

It may appear more economical at the time to renew but one ball—and that the broken one of a bearing which has defaulted in this respect, but it will turn out to be far cheaper in the end to put in a whole set, unless the bearing has had very little wear or the new ball can be carefully gauged to the exact size of the others. Otherwise, the new ball, having more than its share of the load to bear will quickly give way again. It is a small matter, but it pays to see that grease used for lubricating this and other parts of the car is entirely free from grit.

NEW THINGS AT LATE SHOW

London's Agricultural Hall Exhibition Produces Some Novelties—What they are.

Experience would seem to indicate that no matter how often automobile shows were held, there would be plenty of novelty forthcoming to provide them with. At least, such would appear to be the case on the other side at any rate, for the recent Agricultural Hall Show, in London, was hailed by the motoring press there as being productive of fully as much in the way of detailed novelty that is now the only distinguishing feature of the car, as was its predecessor of less than six months ago, the Olympia Show.

And as is true in every other case, some of the novelties are that and nothing more—in fact, some of them have more disadvantages than advantages, and their only *raison d'être* would appear to lie in their

manner of attachment will be plain from the accompanying sketch showing it in place on the chassis. It is of the plunger or piston and cylinder type as distinguished from the friction disc, the retarding action being increased by transmitting it through a chain and small roller.

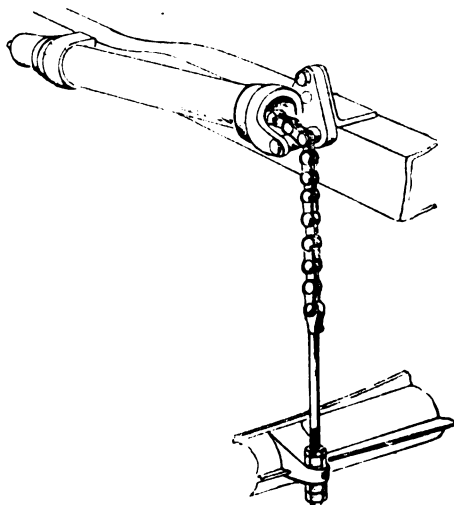


FIG. 2. METALLURGIQUE SHOCK ABSORBER.

"Turbinamo" is the rather odd looking title of one of the novelties shown in the shape of an accessory and it owes its existence to a very large demand that exists for ignition accumulators. Rendered into the Queen's English, its appellation is merely turbine dynamo, of a size designed particularly with this service in view. It consists of a small turbine and equally diminutive dynamo mounted on the same base and the charging plant entire is intended to be run from the house faucet. It generates sufficient current to charge

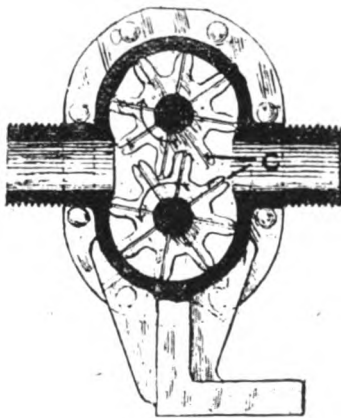


FIG. 3. ALBANY GEAR PUMP.

two sets of accumulators simultaneously and should prove a great convenience for those who find themselves distant from charging facilities.

A special gear pump for which the makers claim the great advantage of being proof against the annoying fault of leakage, was also on view. As will be noted from the illustration, Fig. 3, showing it uncovered, it does not differ to all appearances from the ordinary article of the kind. But up the face and along the edge of each

tooth runs a groove which in an ordinary sized pump does not exceed one-sixteenth of an inch in depth or width. When in action these grooves fill with water which is retained in them as they revolve, forming a water joint or seal between the teeth and the barrel. The Albany Engineering Co., who are the makers, claim that a pump of this type of $\frac{3}{4}$ -inch bore—a size suitable for use on the average car, has a capacity of 500 gallons per hour against a head of 100 feet, when run at the rate of 450 revolutions per minute.

Names as well as the accessories themselves were novel, for a new form of wind shield boasted of the euphonious title of "Pioven." It consists of a sheet of celluloid operated on the familiar roller blind principle. The shade roller is attached to the dash and the shield can be drawn up and fastened at any height desired, being maintained in position by a skeleton frame of the type usually employed with glass. As an auxiliary it is fitted with a special rain

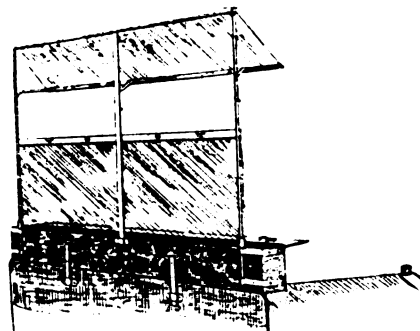


FIG. 4. PIOVEN WIND SHIELD.

shield, designed to protect the driver from the weather without at the same time obscuring his vision by permitting the shield to become wet or fogged. This consists of a second sheet or narrow strip of celluloid mounted in a frame attached to the upper end of the frame carrying the roller shield. When in place the latter is let down some distance and the rain shield is fastened at an angle, as indicated in the illustration, Fig. 4, showing it from behind.

Another maker of shields has taken heed of the cry raised against the plate glass variety by providing an unbreakable type, which is, none the less, of glass. It is termed the "safety" motor screen, and is a permanent fixture of the usual type, consisting of layers of celluloid and glass, cemented together so as to become practically integral. Naturally it is not claimed to be unbreakable, but is intended principally to reduce the damage otherwise occasioned by the accidental breakage of the usual type. The great tenacity of the composite structure of alternate layers of celluloid and glass was illustrated at the show by a shield against which a large rock had been hurled with considerable force. The glass on both sides, was naturally broken, but was not penetrated and did not fall to pieces nor permit any of the small pieces to fly about. The reason for placing the celluloid

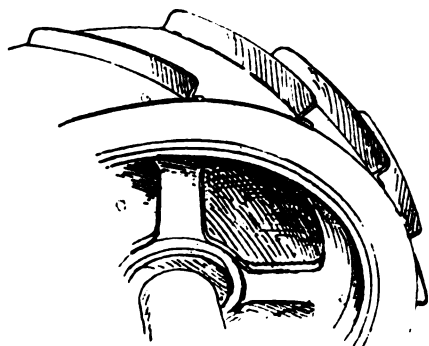


FIG. 1. UNIC FLYWHEEL.

being out of the ordinary. On the other hand, many possess merit. One that would seem to be in the former class is the vane flywheel of the Unic car—a new bidder for fame. Its purpose is to aid in inducing a draft through the radiator and it is but another method of accomplishing what is more often brought about by making the spokes of the flywheel vane shaped, as shown by the sketch Fig. 1, and is, of course, claimed to be superior to the latter. So far as its actual capacity to perform the function intended of it is concerned, there would appear to be no objection, but it does not take one experienced with machinery to realize that when revolving at a high speed such a wheel is practically transformed into the equivalent of a circular saw and that anything coming in contact with it will be torn to pieces. Unless enclosed in a secure casing of metal it would appear to constitute a source of danger rather than of benefit.

It was hardly to be expected that something new in the form of a shock absorbing device would be lacking, though this year's shows on the American side of the Atlantic were not productive of as many as were looked for. One that made its appearance hails from Belgium and is built by the makers of the car carrying it—the Metallurgique. Its construction as well as its

beneath the glass is explained by the fact that the former material tends to discolor when unprotected and is highly inflammable.

A novelty in the shape of an adjunct intended to facilitate filling the fuel tank that was shown, goes by the name of "Pettet's Petrol Filler" to which should be added the word safety to make its title complete, for it is not only designed to dispense with a funnel, but prevents any overflow or spilling of fuel if properly used. It is made in two forms, both of which are shown in the illustration, Fig. 5, as well as its manner of operation. One is fitted with a union for attaching to the standard English gasoline can, while the other is equipped with a wooden bung adapted to use with the ordinary holder. The inwardly projecting tube of small calibre is bent in a curve when in use so that when the spout is inserted in a can, the former will open at its highest point, which will naturally not be occupied by liquid once the emptying process is under way. This tube is for the purpose of admitting air over the contents of the tin. The outer end of this tube projects slightly beyond the spout, so that if the end of the latter be placed at the level to which the tank is to be filled, the step indicated by C, which is placed there for this purpose, the liquid will rise into the air tube and thus effectually shut off the flow. The end of the spout is provided with a detachable gauze filter.

The "Autoloc" is a novelty with a misleading appellation for it is not one of those numerous contrivances to prevent the wily individual who would annex someone else's car from getting away with it, but is merely intended to take the place of the ordinary notched quadrant and bolt employed for holding the change speed gear levers in their places. The advantages claimed for it are greater compactness and automatic as well as universal action, as it will hold the lever rigidly in any position throughout its range without the use of a trigger, and at the same time the hand lever is always free and can be moved in either direction. The details of its construction as well as the principles of its action will be clear from a reference to the sectional drawing Fig. 6.

To begin with, the hand lever A, and the operating lever B on the other side of the fulcrum C, are two different pieces. On the inner end of the lever B is a cam shaped boss, represented by the black portion of the sketch; partly surrounding this are two jaws which are really an extension of the lever A. Between these jaws at one end passes the lever B, but two hardened steel balls and a helical spring are placed between their other faces. These balls are held apart by the spring and lie on the flat face of the cam, thus wedging that member rigidly to the steel case, enclosing the whole mechanism. Owing to the lock formed by the balls, any force applied to the outer end of the lever B, would have to burst the steel case before the lever could

be moved. On the other hand, B may be moved by the lever without any difficulty, because there is just sufficient clearance between the jaws and the lever B, to enable

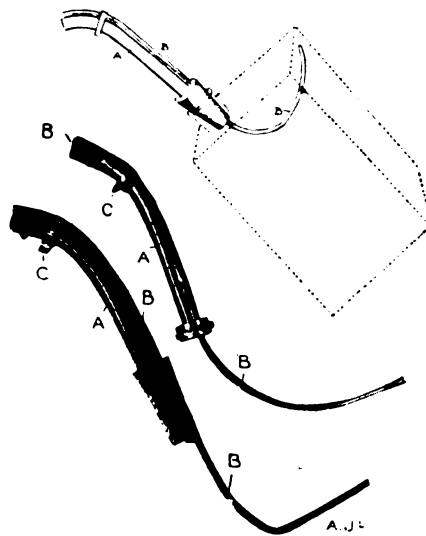


FIG. 5.

the other ends of the jaws to release the balls from their wedged position before the two levers engage with one another, and begin to move in unison. As the two levers

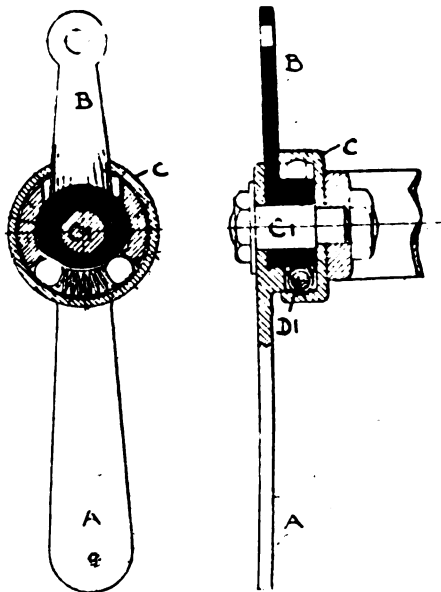


FIG. 6.

rock about their common fulcrum they carry the balls with them and these instantly lock the lever B, directly the pressure on A is released.

The Pilfering of Tools.

In the opinion of some New York garage keepers who have already very forcibly expressed themselves on the subject by posting notices offering a reward of anywhere from \$10 to \$50 for the apprehension of chauffeurs who pilfer tools from other cars, it is high time that the maker of the medium priced car took cognizance of this pernicious practice that is prevalent in nearly all garages and provided their vehi-

cles with some means of locking the tool box. There is little doubt that the opinion in question is shared by every garage keeper, but the practice has probably not assumed the same proportions in every case.

Nothing is more natural when in need of some tool not at hand than to look for it on the nearest car, and as at present constituted there is nothing to prevent access to the tool kit under the front or rear seat of the average car, it is an easy matter to find what is wanted. And nothing is more exasperating to the owner of that same car than to miss the tool when its presence is urgently needed at a little function on the road. The frequency with which owners of cars stored in their garages came back with "blood in their eyes" looking for the man who had "lifted" the tools in question, explains the posting of the notices in question.

It is a small thing, the odd screwdriver, wrench or tire lever, but there are times when its equivalent is not to be had for love or money, and a lock of some sort placed on the tool box is an equally small thing that would insure its presence when most needed. Tool boxes are not broken open and rifled; the offender "borrows" the implement, fully intending to put it back in the majority of instances and sometimes does so, but more often not.

Whether it be from a desire to leave nothing undone that will show that they have attempted to give the purchaser his money's worth, or whether it springs from a realization of the state of affairs just dwelt upon, the average maker of the high priced car has not neglected this convenience. His confrere who appeals to a more popular taste should do likewise and earn the gratitude of both owner and garage keeper. In all probability its absence has been due more to the fact that the necessity for it has not been recognized rather than from motives of economy.

Wood Garage that may Prove Expensive.

The Board of Commissioners of Red Bank, N. J., has directed Edmund Wilson, the town counsel, to bring suit against George Hance Patterson for erecting a wooden building in Monmouth street to be used as a garage, as the building is within the fire limits of the town. The ordinance provides that no wooden building shall be put up in those limits under a penalty of \$10 a day for every day the building remains standing.

Why Hungary's Imports Decreased.

Owing to an impending tariff rate which went into effect March first, the Austro-Hungarian imports showed a tremendous increase in January of this year over the corresponding figures of 1905. The influx of dutiable material effected all branches of trade, but was especially noticeable in the case of the automobile, the total valuation for the month of January, 1906, being \$36,600 as against \$4,000 one year ago.

LIGHT ON OBSCURE DEVICES

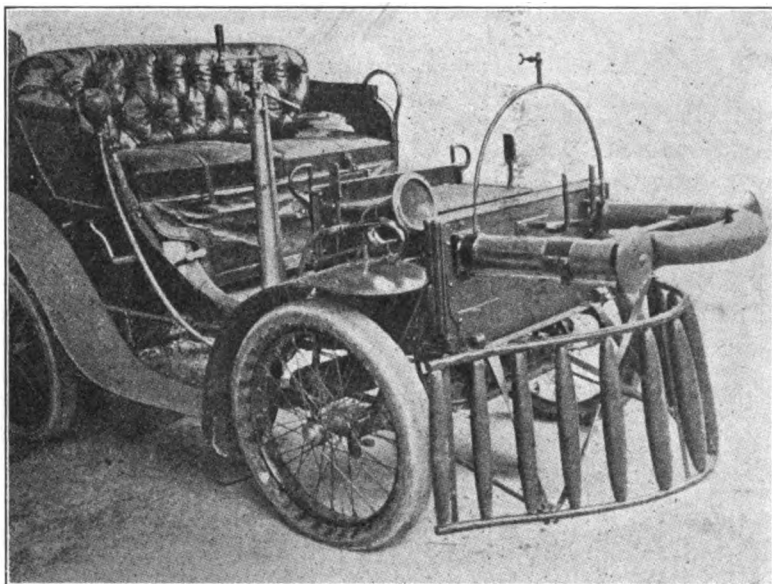
Paris's Peculiar Exposition Brings Them to the Surface—Several that Seem Promising.

The "Exposition des Petits Inventeurs," which was held in Paris last year, proved such a success that it has reached the dignity of an annual affair and the second show of the sort which took place during the first week of the present month, was productive of fully as much in the way of novelty as its predecessor. Naturally quite a number

ing the emergency brake. Despite the automatic features of the device or its value in shoving the obtruding pedestrian from the line of travel in a gentle and polite manner, the man in the street will probably prefer not to come in contact with a moving car whether it is provided with one of these young cowcatchers or not.

To one of the exhibitors, however, must be given the credit of having realized the applicability of an extremely simple and long familiar principle to the problem of self-starting. This is the Archimedian screw which has already figured on the

up, seems nothing short of absurd—after it has been adopted. It is a familiar principle of mechanics that dates back to the ancient Greeks that a screw having a very long pitch will revolve, if it be held at one point by a nut, when pressure is applied at either end of the screw, the direction of the revolution depending upon the thread and the end at which the pressure happens to be applied. And in the present instance the screw is attached at one point to the motor shaft through the medium of a sprocket and chain as shown in the illustration, is supported by a large nut which



ADAPTATION OF THE COW-CATCHER.

of the inventions brought forth show a leaning toward the bizarre, and are, to say the least, of doubtful value, but it is the salvation of the occasional gem of merit that glitters unseen among this mass of harmless oddities that constitutes the very purpose of the exhibition.

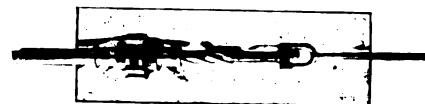
An Englishman paved the way for subsequent crimes of the sort by devising a pneumatic buffer for the forward end of the car, and now a Frenchman has gone him a great many better by enlarging upon the idea until it has reached maturity in the shape of a full-fledged cow-catcher, the odd appearance of which may be realized from the accompanying photograph of the invention. And the reproduction of the end of a locomotive has been carried still further by adding two buffers which in this instance are pneumatic, the compressed air release being formed by the pet cock which terminates the junction of the two pipes that came together directly over the dashboard. Below the pneumatic cylinders are fenders designed to shove to the right or left any obstruction that the car happens to come in contact with. But this does not complete the function of the device by any means, as it is interconnected with the throttle and brakes and when a collision occurs it is intended to bring the car to a stop by shutting off the mixture and apply-

ing the emergency brake. Despite the automatic features of the device or its value in shoving the obtruding pedestrian from the line of travel in a gentle and polite manner, the man in the street will probably prefer not to come in contact with a moving car whether it is provided with one of these young cowcatchers or not.



A SIMPLE SELF-STARTER.

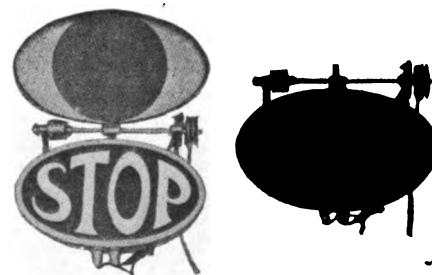
of leaving the seat is merely another one of those anomalies of the channels followed by inventive thought—that it should not have occurred to anyone of the horde of inventors who were applying themselves to the subject when the latter first came



ARCHIMEDIAN SCREW SELF-STARTER.

compels it to revolve and is attached at the other end to the starting lever which is placed so as to be conveniently operated by the driver. One pull on the lever is sufficient to give the motor several complete revolutions, and the operation may be repeated indefinitely by merely moving the lever back and forth, means being provided to disengage the screw automatically when the motor starts. The details of the device as well as its striking simplicity, will be apparent from the illustrations.

A "Ruckwartsgang" attachment for the rear of the car, which in spite of the fact that it is of Teutonic origin and is shown at a French exhibition, bears the imperative



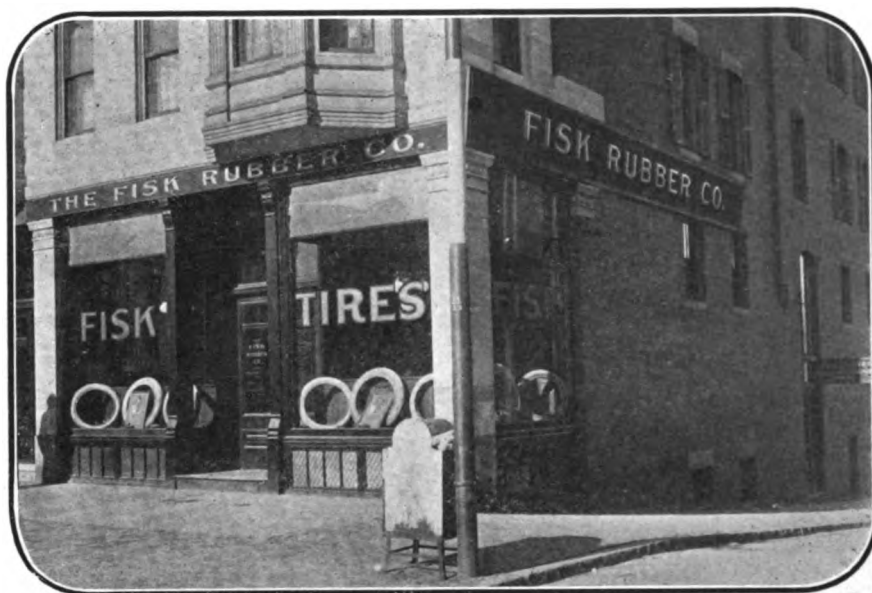
TO PREVENT REAR-END COLLISIONS.

warning "Stop" in the Queen's English, is something the purpose of which is obvious. Hand signals are all well and good in open cars where the driver of a car approaching from the rear can see what the manipulator of the vehicle in front of him is doing, but with the closed car this is not the case. The device consists of a glass plate of oval shape on which the warning is painted or engraved in letters of a substantial size. During the day the signal is white and at night it is illuminated by an electric light. The cover which obscures it when not in action is connected with the clutch pedal by means of a light steel cable, so that whenever the clutch is out of engagement the warning becomes visible.

It would constitute a work of considerable magnitude to attempt to catalogue all of the things brought together at such an exhibition and it goes without saying that such a collection can seldom be seen under the same roof.

How Fisk Furnishes Free Air.

Free air is a gift which every one accepts as an heritage, but free compressed air is something that will appeal to the average chauffeur as a veritable godsend of a convenience and a labor-saver. An advertising scheme that puffs for itself is the compressed air device which the Fisk Rubber Company is installing in all its branches. The new Boston store at 239 Columbus ave-



nue, which is reproduced above, was one of the first to establish the free air arrangement and the automatic box is shown under the side display window. The owner who feels the tires of his car becoming soft has only to drive up to the curb, attach the tube to the tire valve, turn on the stop-cock and let the air do the rest.

Secrets in Rex Accumulators.

Accumulators are now conceded to represent by far the best source of ignition current for the car in cases where batteries are used; in fact, their adoption has become so widespread as to almost make a statement to this effect superfluous. This demand has done much to bring about improvements in the small storage cell, both internal and external, so that the present day set of ignition accumulators is lacking in few things that go to insure convenience or reliability. One thing that has been found more or less inconvenient with the encased sets is the necessity of investing in an entire new set where it is found necessary to increase the voltage, or where one of the cells becomes damaged, pending the repair. This is something that has been taken into account by the New England Motor Co., of Lowell, Mass., which has placed a line of storage units on the market in addition to the various types of Rexes.

These are, of course, independent cells, any number of which may be coupled to give the desired voltage. The elements are enclosed in sealed rubber jars, furnished with valves and terminals and may be used

in the same manner as dry cells. They are also employed in forming what the makers term their type C ignition set which consists of the required number of cells packed in a hardwood case in connection with a shock absorbing medium between the hard rubber and the wood. The elements of the Rex cells are of the pasted type, the active material being applied to grids made of inoxidizable alloy. The substances used in

compounding the composition used in making the active material for the positive plates constitute a trade secret, even the chemicals entering into it being purchased by numbers. The use of this compound is claimed by the makers to produce a very dense peroxide which has absolutely no local action, by which means abnormal lasting qualities are said to be secured, instances having occurred in which marine sets have served from April to October without recharging. The Rex sets are made in all regular sizes, 40, 60 and 80 ampere hours at 4, 6 and 8 volts, the system of notation employed to designate them being extremely simple. For example, a number 64 set, is a battery with a capacity of 60 amperes at 4 volts.

Napier to Produce "Gearless" Cars.

The English Napier Co., which has been loudly applauding the cause of the six-cylindered vehicle, has at length crossed the Rubicon and announced the immediate production of that long-desired achievement, the "gearless" car. The machine in prospect will not be gearless in the strictest sense of the word, as the transmission to the driving wheels will be by bevel gears. The change-speed gearing will be quite lacking, however, all variations of speed being obtained by the use of the engine control, the drive being a solid connection.

New York offices of the Carpenter Steel Co. have been established in the American Surety Building, at 100 Broadway.

Safeguards from Gasolene Leaks.

It has become a matter of almost universal practice to place a shut-off cock in the gasolene feed pipe, but it is not so very long ago that this was considered rather in the light of an unnecessary detail, and in some instances this is still the case. The motorist who knows how to do such things, and who is not afflicted with a penchant for attempting to "improve" upon what the maker has established through costly experience to be the best suited for the purpose, should make this a subject for his attention if his car be not provided in this respect. There is no telling when a carburetter will begin to leak and if the car is standing for the night when this happens, merely turning the car over in the morning may provide the spark that will start a blaze. But half a dozen different ways of shutting off the gasolene will not avail much if they are not used whenever the car is to stand for any length of time.

Just how the Motor Works.

Graphic illustration rather than technical dissertation seemed to have been the object of the salesman who in dwelling upon the merits of the particular car he was retained to sell, came forth with the following: "You see," said the expert elucidator, "when the piston comes up and compresses a lump of gas, a spark jumps in and touches it off and the engine gives a poke which turns the crank shaft around. Then the piston comes up again and chases out the burnt gas and takes in a fresh charge as it goes back; then it comes up once more and the load gets a spark again and the piston is blown back and the crank shaft gets another poke just as before. Every time a spark is let in the engine gets a poke and gives it to the crankshaft, you see. It's perfectly simple."

Color Line for Chauffeurs.

Race war tactics have been extended to the automobile, for Chicago chauffeurs—the white ones—claim that their brethren of color are entering the ranks in such numbers that the erstwhile high calling is being demeaned, and, what is more to the point, salaries are suffering by the same token. In consequence, the Chauffeurs' Club of the Windy City has taken official cognizance of prevailing conditions by deploring the fact that colored men are fast supplanting them as motor coachmen in private families with a resulting tendency to cut salaries and cheapen the business, but no action has been decided upon as yet.

More Room for Springfield Bodies.

Prosperity, which has come in generous measure to the Springfield (Mass) Metal Body Co., is well reflected by four-story addition to their plant, of which they have just taken possession. The new building adds 48,000 square feet of space to their "elbow room" which, of course, means a big increase in their facilities for producing the aluminum bodies and fenders and the tops, the quality of which has been responsible for their prosperity and reputation.

SOFT BERTH FOR POLITICIAN

New Yorker's Accident Bureau Bill Would Create it—"Traveling Expenses," too.

Although at the time of its introduction into the New York legislature, it was stated that the measure proposed by Assemblyman Weber was to provide for a "State Vehicle Commission," it transpires that the bill is nothing more or less than an attempt to create a meaningless automobile accident record commission that will serve to give a job to at least one secretary at \$1,200 a year and possibly a few more helpers. It gives the governor power to appoint three persons who shall constitute the "motor vehicle commission," and whose term of office shall be for two years. These three commissioners shall do their work—"services" is the way the bill expresses it—gratis, but—and it is a very big "but" that means more than the bill would have it understood—they "shall be paid their necessary traveling expenses."

The secretary of the commission, who is to be appointed by the trio, of course, seems to be the one to reap the greatest harvest. In addition to having his expenses paid he will receive a salary of \$1,200 per annum. The commissioners also may appoint additional clerks and an attorney, so that the chances for unlimited graft for those who secure the "plums" appear large. There will be no work attached to the positions as the clerks of the secretary of said commission could in one day record all the automobile accidents that might occur in the State of New York in one or even ten years, this seeming to be the only work the commission will be required to do. The full text of the measure follows:

Section 1. Short title.—This chapter shall be known as the motor vehicle accident record law.

Section 2. A commission is hereby created, to be known as the State motor vehicle accident commission.

Section 3. Within ten days after the passage of this act the governor shall appoint three persons who shall constitute the motor vehicle accident commission. They shall hold office for the term of two years, and until their successors shall have been appointed and qualified. A commissioner shall, in like manner, be appointed at the expiration of the term of any commissioner, or when any vacancies shall occur in the office of the three commissioners. Such commission shall receive no compensation for their services, but shall be paid their necessary traveling and other expenses.

Section 4. Such commission shall appoint a secretary, who shall serve at its pleasure, and whose duty it shall be to keep a full and faithful record of the proceedings of such commission, preserve at its general office all documents and papers intrusted to his care, prepare for service such papers and notices as may be required of him by the commission, and perform such other

duties as the commission may prescribe. He shall have the power, under the direction of the commission, to issue subpoenas for witnesses, and to administer oaths in all cases, pursuant to the duties of his office. Such secretary shall receive an annual salary of twelve hundred dollars, payable quarterly by the State treasurer, on the warrant of the comptroller.

Section 5. Such commission may also employ, and at its pleasure remove, such additional clerical officers and examiners, as may be necessary, for the transaction of its business, and may employ an attorney-at-law, counsel for the commission.

Section 6. The principal office of the commission shall be in the city of Albany, in rooms designated by the capitol commissioners, and it may have a branch office at the city of New York, and one at the city of Buffalo, and the said commission, or a quorum thereof, shall meet at least three times a year, during the year, at Albany. The commission shall have an official seal. Two of the commissioners shall constitute a quorum for the transaction of any business, or the performance of any duty, and may hold meetings at any time or place, within the State of New York. All examinations and investigations made by the commission may be held and taken before and by any one of the commissioners by order of the commission, and the proceedings and decision of such single commissioner shall be deemed to be the proceeding and decision of the commission, when approved and confirmed by it.

Section 7. The commission shall have power to administer oaths in all matters relating to its duties, so far as necessary to enable it to discharge such duties, and may cause witnesses to be subpoenaed, and if a person duly subpoenaed fails to obey such a subpoena, or to answer a legal or pertinent question, or to produce a book or paper which he is directed by subpoena to bring, the commission may take such proceedings as is authorized by the code of civil procedure, upon the like failure or refusal of a witness subpoenaed to attend a trial of a civil action before a court of record. The said commission shall adopt rules for the examination into causes of automobile accidents, and other matters pertaining thereto happening upon the public highways and streets of the State of New York. Such examination may be had before the commission, or any one of them, or before an examiner to be designated by the commission. The said commissioners shall have reimbursed to them the necessary traveling expenses and disbursements of themselves, their employees and clerks. All salaries and disbursements shall be audited and allowed by the comptroller, and paid quarterly by the State treasurer, by order of the comptroller upon the certificate of the secretary out of any funds appropriated therefor.

Section 8. Whenever injury or damage to the person or to the property of any person or corporation, results from the operation

of any automobile or in connection therewith, or of any other motor vehicle, not upon tracks, on the public streets and highways of the State of New York, it shall be the duty of the peace officers of the jurisdiction in which the injury or damage occurred, to investigate the injury or damage, within ten days after the happening of the accident or injury, and within twenty days after the happening of such accident or injury, to send by mail to the secretary of the motor vehicle accident commission at Albany, a written report of the particulars of the accident or injury, including the time, place of injury or accident, stating the number of the motor vehicle, the names and residences of the operator of the vehicle, the owner, the occupants, the names and residences of the parties injured, if any, the names and residences of owners of the property damaged, if any, and names and residences of the parties who witnessed the accident or injury, if possible. It shall further be the duty of such peace officers to state the cause of the accident or injury as determined from an examination into the facts, and there also shall be a statement of the result of the accident, in reference to its injurious effect upon property or to the person. Any person who is a witness to an automobile accident causing injury or damage to the property or to the person of another, or who knows the facts concerning such an accident or its cause or its results, may have the privilege of reporting the matters hereinbefore prescribed as a duty of the aforesaid peace officers, but in order that said witness's report shall be accepted, he shall as a condition to its acceptance, make the report in accordance with the rules adopted by the said commission, and shall make oath to the facts stated in his report before some officer of the State of New York, duly empowered and commissioned to administer oaths. The said motor vehicle accident commission shall issue proper blanks for the purpose of stating the particulars hereinbefore mentioned, which blanks shall be distributed to all persons requesting the same, and it shall be the duty of the peace officers investigating the cause of a motor vehicle accident, resulting in damage to the property of another, to truly answer the questions of said blanks, and to fill in the blanks according to the rules adopted by the said commission.

Section 9. It shall be the duty of the motor vehicle accident commission to furnish proper blanks to be filled out for the purpose of this act, and to provide a book in which records of all accidents and the matters pertaining thereto may be kept, and to see that there is a proper record kept of reported motor vehicle accidents, happening within the State of New York, upon the public streets and highways, whereby injury or damage to property or to the person of another is caused. Said book and other records of the said motor vehicle accident commission shall be at all proper and reasonable times open to public inspection.

Section 10. All acts and parts of acts inconsistent herewith or contrary hereto, or as far as they are inconsistent or contrary, are hereby repealed.

Section 11. This act shall take effect May first, nineteen hundred and six.

WAYNE MODEL F.

1261 MILES Up and Down Broadway in 87 HOURS Without a Motor Stop.

SELLING AGENTS AND DISTRIBUTORS ETC.
"WAYNE" AUTOMOBILES
IN EASTERN NEW YORK, PENNSYLVANIA,
WESTERN CONN. AND NEW JERSEY

OFFICE AND SALESROOM PHONE (4355) LUMBER
(4954)
REPAIR STATION 2134 BRYANT

Wayne Automobile Company
OF NEW YORK

A.L. KULL, GENERAL MANAGER
SALESROOM
1055 BROADWAY
REPAIR STATION
65 WEST 43RD ST.

New York, April 14th, 1906.

The Wayne Automobile Company,
Detroit, Mich.

Gentlemen:-

Replying to your favor of the 12th instant, asking for detailed information regarding the performance of the 50 Horse Power, "Wayne" Model F Touring Car, in the recent six day non-stop reliability run, we beg to say that the performance of the car up to the time of the unfortunate accident which made it impossible to continue, was simply remarkable!

During the 87 hours which this motor was kept running continuously, there was not one indication that the motor was not capable of continuing its work indefinitely; only those who are familiar with the route traversed by this car during the 87 hours, will appreciate the magnitude of this performance. Starting at Long Acre Square, one of the most congested points of Broadway, and proceeding straight up Broadway to 110th St., and return, is perhaps the most gruelling work a car could have been put to. The continual slowing up and stopping, then starting, which often times had to be done five or six times in an ordinary city block, subjected this car to use and strain that it would not have received in an ordinary year's work.

Our total consumption of gasoline for the 87 hours during which time we covered 1261 miles, was 104 gallons! There was also 14½ gallons of lubricating oil used. The two sets of "Porter" storage batteries, alternately, easily furnished the ignition for the entire run.

The unfortunate accident which necessitated discontinuing this remarkable run at 59th Street and Columbus Circle, was caused by a private carriage backing into the car and running the spring through the radiator. It was impossible for the driver of our car to avoid this as the traffic was so congested that the vehicles behind him made it impossible for him to back out of the way.

The observer in the car at the time was Mr. F.O. Emmons, of the New York Times; the remaining gentlemen who observed the performance of this run during its entirety were----

George Brown
H.L. Humphreys
W. McAllister

New York Tribune
New York Post
New York Sun

Duncan Curry
W. Horner
E. Thompson

New York Amer.
" " Press
" " Jr. of
Commerce.

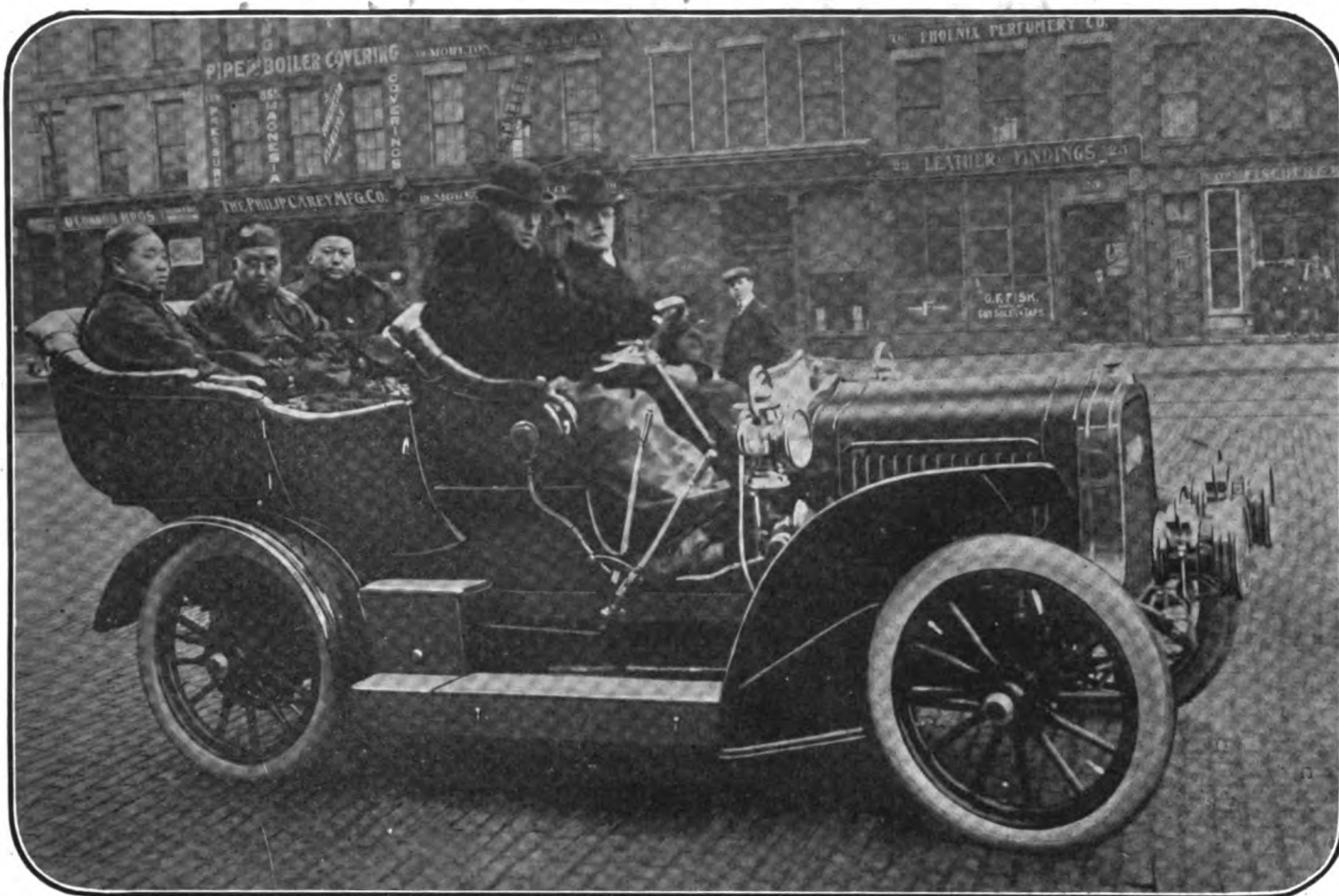
After the accident, the car was stopped at our salesrooms, and disassembled to such an extent as to give all those who cared, an opportunity of examining the gears, motor bearings, connecting rods, and such other parts of the motor as would show wear during a run of this kind. The universal expression was that the car was as good as ever and that the running perhaps did it more good than harm.

Regretting exceedingly that we were so unfortunate as to be unable to continue the remaining two days, we are

Yours truly,

A.L. Kull

How the Chinese Commissioners Saw Things.



IN THE POPE-TOLEDO IN WHICH THEY "DID" DETROIT.

Philadelphia Wants Motor Ambulances.

Philadelphia's city hospital will have automobile ambulances if Director of Health and Charities Coplin is fortunate in getting his ideas accepted. He says that the department's ambulances frequently journey thirty miles or more in making a single round trip. After such a journey the horses, he contends, are in no condition for further service that day. On some days, he says, three ambulances are in such constant use that each requires three or more teams to perform the service. In all the department has to maintain a stable of about eighty horses. He believes that one automobile could do the work of two horse-ambulances.

In the Year 2006.

"What was the largest class of liars that ever existed?" inquired the teacher of the class in history in 2006.

"There is no accurate record," replied the student addressed, "but it is an accepted fact that it was the sect of automobilists that flourished about one hundred years ago who bragged to their friends that their cars could travel 90 miles an hour and swore under oath in police court that they were not capable of more than 8 miles an hour."

Long Island to Repeat Economy Test.

Announcement is made by the Long Island Automobile Club that it will hold another economy test this year for its club members. This organization held the first economy run last year from Brooklyn to Southampton, L. I., and return. Dr. C. B. Parker, who won the event last year, has offered a trophy for this year's contest and the committee is now at work on dates, route and conditions.

Twenty-four Hour Race in Prospect.

A twenty-four hour endurance race for catalogued stock cars is one of the projects that is being agitated in the Rhode Island Automobile Club, of Providence. If the idea is officially accepted the start will be made on July 3, finishing the next day, when it is planned to hold a series of races on the Naragansett Park track.

Peoria Elects Onken President.

The Peoria (Ill.) Automobile Club has elected these officers for the ensuing club year: President, B. H. Onken; vice-president, A. E. Angerson; secretary, A. R. Whitney; treasurer, W. H. Rees; directors, L. C. Wheeler, J. B. Bartholemew, M. E. McGruder and S. K. Hatfield.

"Automobile Day" at Kentucky Fair.

In Kentucky, the home of blue-blooded racing horses and good whiskey, the automobilists and horsemen get along most amicably. The Shelby County Fair Association, which is composed mostly of horse owners, has set apart Wednesday, August 29, as "Louisville Automobile Club Day." On that day the club will make the run to Shelbyville and be the guests of the fair association. Just a wee bit of diplomacy is apparent, for some time ago the Louisville Automobile Club voted to award a \$150 cup for one of the prizes at the fair.

Hartford Club Choses Officers.

At the meeting of the Hartford (Conn.) Automobile Club, last week, J. Howard Morse was re-elected president. Other officers were chosen as follows: Vice-president, F. C. Billings; secretary, G. B. Dustin; treasurer, R. B. Belden; chairmen committees—membership, L. C. Grover; runs and tours, George Beach; racing, George E. Sykes; good roads, J. M. Birmingham; amusement, A. L. Hills; rights and privileges, R. M. Goodrich. Several new members were elected and the report of the treasurer showed a balance of over \$300 in the club treasury.

Why the 'Bus Drivers Struck.

Proof positive that the status of the motor 'bus has become fixed in Great Britain at least, is seen in the record of the first strike among the drivers of the Kingsway route of the new London and Suburban Omnibus Company, which has just been inaugurated. A faculty developed by some of the drivers for "soldiering" along their trips, thereby delaying the schedule, and materially affecting the amount of their daily work, made it evident to the management that a piece-rate system of wages was imperative. Accordingly, the men were paid by the trip instead of by the day as was done when the service was first started, but dissatisfaction over the rate and system soon arose, and the usual "hold-up" method of asserting their rights was taken by the men. Unlike the strike situation in certain other lines of activity, however, the supply of motor drivers is never failing, and the company is reported as having no difficulty whatever in filling the places of the disgruntled drivers.

To Test the Resilient Wheels.

Although the idea of the resilient wheel has not as yet taken hold on this side of the Atlantic to any appreciable degree, the makers and users being quite content with the ordinary types of pneumatic tire and solid wheel, apparently the conditions are not wholly unfavorable to it on the Continent and in England. Although the car builders there have not as yet given their official sanction to the spring wheel, yet several makes are on the market, and that there is considerable feeling in favor of them, sufficient, indeed, to stimulate the inventors, is shown by the fact that a baker's dozen of different types are entered for the forthcoming trials which are to be held in France.

The Woman with the Streamers.

"I don't like a woman who 'streams' on a car," says a driver-owner who will never permit anyone else to hold the wheel when he is in the car and who attends strictly to business every moment the vehicle is under way. "It's all very well for them to get themselves up in that truly feminine and fascinating way they have, by throwing on a puff here and a dab there with a winding sheet about the whole to keep it in place, but when a woman wants to sit beside the driver, she ought to see to it that none of her yards of head drapery are allowed to float in the breeze, and it doesn't matter who she is, she has to do so when she sits beside me."

How Paris Promotes Installment Sales.

Paris now has an "Automobile Bank," which is somewhat analogous to the American building and loan institutions in that purchasers of motor cars are permitted to make monthly payments on their machines, the company assuming the responsibility of the purchase, and collecting the install-

ments. The term of the loan is twenty months, and the amount payable totals the list price of the car purchased.

Insurance Company Sets up Crazy Claim.

Although the assertion often has been made that most automobilists are monomaniacs as regards speed, it had however taken no more tangible form than in utterances from motorphobic yellow newspapers and from individuals with these same tendencies. An accident insurance company now is using this far-fetched reason as grounds for not paying a large accident insurance policy made out on the life of M. L. Hancock, of New Orleans, La., who was killed in an automobile accident in Los Angeles, Cal., some months ago. The company says that it cannot pay a claim on an automobilist, as most of them are monomaniacs on speed and, therefore, it, the accident insurance company, is not responsible.

The beneficiaries of Hancock's policy have brought suit, and the company in its filed answer, asserts that the man who was killed was practically insane on the question of speed and it should not be held liable for deaths resulting from the actions of a person temporarily insane. In the same answer, the company asks that if it should be held liable it should be for only half the amount, as it holds that its liability is lessened if the insured shall engage in any hazardous employment, and this, it is asserted, includes automobiling. The case is interesting to automobilists as it will establish a precedent as to the liability of insurance companies for accidents to persons while in an automobile.

Why the Pedestrian Wondered.

An automobilist who was touring through the country saw, walking ahead of him, a man followed by a dog. As the machine drew near them the dog started suddenly to cross the road; he was hit by the car and killed immediately. The motorist stopped his machine and approached the man.

"I am very sorry, my man, that this has happened," he said. "Will five dollars fix it?"

"Oh, yes," said the man; "five dollars will fix it, I guess."

Pocketing the money as the car disappeared in the distance he looked down at the dead animal.

"I wonder whose dog it was?" he said.

Jersey Club Makes Nominations.

Present Vice-President Joseph H. Wood of the New Jersey Automobile and Motor Club, of Newark, N. J., has been nominated to succeed James R. English, as president of that organization, when the annual election is held the first Monday in May. Angus Sinclair, of East Orange, is slated for the vice-presidency, and James R. Coleman, who has been the organization's treasurer ever since it was formed, is due to again succeed himself.

Cause of Carburetter Trouble.

Not infrequently a most mysterious affection of the carburetter may develop on the road without apparent provocation, which results in the stoppage of the motor. At such times it is usually the case that re-starting is comparatively easy, the motor exploding at the second or third turn of the crank, and giving no further trouble for some little time. Usually, this may be traced to the choking of the jet, which may occur through any one of three causes. Either entrained water may be present in the gasoline which accumulates at the base of the jet in sufficient quantities to clog it; particles of dirt may be present, which, rising and having cut off the supply long enough to stop the generation of the gas, fall back again into the settling cup beneath; or there may be an accumulation of paraffine in the form of a gelatinous paste, which forms an effectual seal. The remedy in either event, is first of all, to drain off the jet from below, and then to clean it thoroughly with a fine wire. Another good method is to attach a tire pump to it and blow out all impurities.

Boston to "Open the Ball."

The Bay State Automobile Association will hold its annual Decoration Day race meet at the Readsville track, Boston, on May 30th, sanction having been granted by the American Automobile Association. It will be the first track meet to be held in the East this season. An attempt will be made to secure Oldfield, Hilliard, Ross, Cedrino and other cracks to enter match races. In addition there will be a five mile event for steam cars, five miles for cars costing not more than \$1,000; five miles for cars costing between \$1,000 and \$2,000; five miles for cars costing less than \$3,500; five miles free-for-all stock cars; and a handicap stock car race for owner-drivers.

What an Automobile is not.

According to the English law, an automobile weighing more than 20 cwt., or 2,240 pounds is not a "light locomotive" and is in consequence not taxed under that heading. Nor is a motor car that weighs not more than one ton or upward of five tons, unladen, a young road roller. It is of no particular moment to delve any further into the question of what the automobile is not, one of the queer things that it is under the law in question, is its classification with dogs for the purpose of licensing. If a British car owner wishes to license his "motor" and his "motor dog" he may do so by filling out an application for both on the same blank, for Internal Revenue form 132, is to be used in making "Declarations for Establishments, Motor and Dog Licenses."

"My car hasn't a freckle on it," is the quaint way which a motorist took to convey the information that the finish of the body of his car showed no signs of wear whatever after six months' continuous use.

The Week's Patents.

817,132. Storage Battery. William H. Palmer, Jr., New York, N. Y. Filed Fed. 14, 1905. Serial No. 245,605.

Claim.—1. A storage-battery cell comprising a series of positive and negative plates alternately disposed therein, the two groups supported from opposite ends of the jar, and means at the upper edges of the plates constructed to provide additional mutual supporting means, substantially as described.

817,180. Cooling System for Braking and Clutch Mechanisms. John F. Metten, Philadelphia, Pa. Filed Apr. 15, 1905. Serial No. 255,820.

Claim.—1. In a device of the character described, the combination of a braking device, a casing therefor and a wholly-confined centrifugally-actuated fluid-circulating cooling system thereof.

817,193. Supply-Controlling Mechanism for Gas-Engines. Frederic K. de la Saulx, Seraing, near Liege, Belgium. Filed May 17, 1904. Serial No. 208,424.

Claim.—1. In a supply-controlling mechanism for gas-engines the combination with the cylinder, of an inlet-opening in said cylinder, a mixture-inlet valve closing said inlet-opening, an air-supply valve rigidly connected to the mixture-inlet valve, a gas-valve arranged concentrically with the mixture-inlet valve, a governor, means for controlling the moment of opening the gas-valve by the governor and a connection between the gas-valve and the mixture-inlet valve so as to limit the amount of opening of the gas-valve according to the amount of opening of the mixture-inlet valve, substantially as described and for the purpose set forth.

817,203. Mud-Guard Fastening. Bert E. Thompson, Detroit, Mich., assignor to The Wilson & Hayes Mfg. Co., Detroit, Mich. Filed Oct. 17, 1904. Serial No. 228,688.

Claim.—1. The combination with a mud-guard, of a bracket having an end extending across the guard, a loop secured to the guard and embracing the end of the bracket, and a bifurcated clamp embracing the loop and provided with openings to receive said end.

817,204. Fastener for Fenders. Bert E. Thompson, Detroit, Mich., assignor to Hayes Manufacturing Company, Detroit, Mich., a corporation of Michigan. Filed July 22, 1905. Serial No. 270,890.

Claim.—1. The combination with a fender and an arm to support the same, of a fastener comprising a socket lying flat against said fender and split longitudinally on one side, lugs projecting from the edges of the split side of said socket, bolts extending through said fender and said lugs and adapted to clamp the socket securely on said arm when the engaged end of said arm is parallel to the fender, and a projecting plate on said socket adapted to be secured to said fender.

817,210. Magnetic Friction Clutch. Harry A. Williams, Akron, Ohio, assignor to The Williams Electric Machine Company, Akron, Ohio. Filed May 26, 1905. Serial No. 262,371.

Claim.—1. The combination of a shaft, a driving member rigid therewith and a driven member loose thereon, an expansible member carried by the driven member, adapted to engage the driving member a magnetic coil carried by the driving member, and means operated by said coil to expand the expansible member and engage the driving and driven members.

817,218. Carbureter. William and James Brown, Vancouver, Canada. Filed Oct. 20, 1905. Serial No. 283,654.

Claim.—1. In a carbureter, a casing provided with a plurality of elongated passages running from end to end, absorbent material held in said passages, header-plates for each of said ends, and provided with connecting-passages for said elongated passages of the casing to connect them in a serial arrangement, means for introducing atmospheric air to the said passages at the beginning of the series, means for conveying off the gas from the end of the series of passages, an oil-reservoir for containing hydrocarbon liquid having a valve-controlled inlet in its bottom, said means for conveying off the gas being also connected to the valve-inlet of the oil-reservoir, means for withdrawing the gas from the upper end of the oil reservoir, and a spring-controlled air-valve opening inward in the withdrawal-pipe.

817,235. Spring Wheel. Dudley Farrand, Newark, N. J. Filed May 20, 1905. Serial No. 261,331.

Claim.—A vehicle-wheel including a rim, a flanged hub and spokes pivotally connected to the rim and hub, each of said spokes comprising a cylinder having external strengthening-webs extending lengthwise of the cylinder and projecting at the base thereof and pivoted to the hub-flange; a stem pivoted to the rim, and provided with a piston mounted in the cylinder; a spring-cushion above the piston and a pneumatic cushion beneath the piston within the cylinder.

817,258. Motor Driven Vehicle. Otto G. A. Littman, Charlottenburg, Germany. Filed Mar. 1, 1904. Serial No. 196,001.

Claim.—In a motor-driven vehicle, the combination of two relatively large front driving-wheels, two hind-steering wheels of small size relatively to said front wheels, an elevated axle for the front wheel serving as a driving and braking axle for the vehicle, a motor located between the front wheels, gearing between the motor and the driving-axle of the vehicle, a water-receptacle located between the front wheels with cooling arrangement for the motor, a store-receptacle located between the front wheels and below the front axle, a car-body over the rear axle, a driver's seat located over the front wheel axle and above the plane of the car-body, and means for operating the small hind wheels from the driver's seat.

817,265. Spring Wheel. Warner W. McKee, Belleville, N. J. Filed May 20, 1905. Serial No. 261,330.

Claim.—1. A wheel comprising a rim, a hub, and resilient curved connection between the rim and hub and directly connecting said rim and hub, said connections being in yielding contact with each other for a portion of their lengths.

817,266. Starting Device for Explosive-Engines. Gilbert N. McMillan, Buffalo, N. Y. Filed Dec. 3, 1904. Serial No. 235,294.

Claim.—1. The combination of an engine shaft, a starting shaft, means connecting said shafts and constructed to cause them to turn together in one direction and having a part movable in a direction endwise of said starting-shaft to release the engine-shaft and allow it to rotate in the opposite direction independently of the starting-shaft, and means for positively holding the starting-shaft from rotation with the engine shaft in said opposite direction, substantially as set forth.

817,309. Clutch. Louis W. G. Flynt, Rochester, N. Y., assignor to Quentin W.

WANTS AND FOR SALE.

15 cents per line of seven words, cash with order.
In capitals, 25 cents per line.

A TEN PASSENGER wagonette; sample car, 1905-1906 model steam; price and description on application. THOMPSON AUTO CO., Olneyville Sq., Providence, R. I.

WANTED—Your auto tires; don't throw them away; we rebuild and do retreading; guaranteed to last like new; less than one-third the cost of new casings. MEYER RUBBER VULCANIZING WORKS, Anderson, Ind.

FOR SALE—White Steamers. A few 1903's overhauled and repainted at the factory, and guaranteed in first-class mechanical condition; all equipped with engine cutouts and other late improvements; \$750 f. o. b. Marion, O. C. C. STOLTZ, Marion, O.

\$850—1904 WHITE STEAMER, with new engine; thoroughly overhauled and repainted; equipped with canopy top, side hampers and extra rear seat; engine equipped with cutout; hand by-pass on dash. KEYSTONE AUTOMOBILE CO., 5905-15 Centre Ave., Pittsburg, Pa.

FOR SALE—Yale 1903 Touring Car; two cylinder; 12 horse power; good condition; price, \$600. C. G. BILL, Unionville, Conn.

FOR SALE—Baker Electrics—One each, Runabout, Stanhope, Imperial and Surrey with top—all new and at greatly reduced prices. THE LOZIER MOTOR COMPANY, 55th Street and Broadway, New York City.

FOR SALE—Winton Quad. 1905 model, in good condition CARL PRITZ, 909 Sycamore street, Cincinnati, Ohio.

WANTED—Position in Automobile Manufactory as foreman of paint, body or trimming shops; many years experience in carriage and three years in automobile shop; Highest reference as to character and ability. FOREMAN, care of Motor World.

AUTOMOBILE FOR SALE at a Bargain. 1905 Rambler Surrey Type 1, special color, three extra tubes, one shoe, cape top and other extras costing over \$1,500. This car is in fine condition and run only about 1,700 miles. Will demonstrate thoroughly and sell at sacrifice. Excellent reason for selling. Don't miss this chance, but write at once for price and particulars to W. R. OLNEY, Oneida, N. Y.

CHAUFFEUR, with road experience, wishes position, preferably in New Jersey or New York; references; experienced on Rambler, Pope-Toledo, and Cadillac, but can run any gasoline car. Address G. F. Jackson, 409 Chestnut St., Roselle Park, N. J.

FOR SALE—1905 Royal Tourist, blue body, cream gear, Victoria top, \$2,500; National 24 H. P., light blue, yellow gear, \$2,100; National 24 H. P., black, red gear, \$1,750; National 24 H. P., light blue, cream gear, \$1,600; Franklin tilting, front seat type touring car, red, side hampers, \$1,000; Franklin model "E" runabout, blue, cream gear, \$550; Winton '04 model, new tires, \$950; Winton '04 model, \$850. Above cars thoroughly overhauled, newly painted, fully equipped. REYBURN MOTOR CAR CO., 5023-29 Delmar Blvd., St. Louis, Mo.

Booth and Irving E. Booth, Rochester, N. Y. Filed June 7, 1905. Serial No. 264,081.

Claim.—1. In combination, a driving member having a steel bush provided with a plurality of holes, and a brass bush at each side of said steel bush, a driven member having a hole adapted to register with the holes in the steel bush, a movable coupling-ball operatively associated with said members, and an opening device for shifting said coupling-ball into engagement with the walls of aligned openings in the driving and driven members whereby said members are positively connected.

817,391. Gasolene-Dispensing Can. William Hy Robertshaw, East Orange, N. J. Filed April 29, 1905. Serial No. 257,993.

Claim.—A dispensing-can comprising a casing, an outlet-pipe extending from the interior to the exterior of the can, a valve in the outlet, a nump extending from the top to the bottom of the can and having a plunger therein, a tight closure at the top of the pump between the pump and the can, a ball in the neck of the pump, a pipe parallel with the pump and entering the pump above the neck of the pump, a flaring mouth on the pipe in close proximity to the top of the can, and a ball in the mouth of the pipe larger in diameter than the space between the top of the pipe and the top of the can.

817,498. Storage Battery. James R. Macmillan, Menomonie, Wis., assignor to Northwestern Storage Battery Company, Chicago, Ill., a corporation of Illinois. Filed April 1, 1905. Serial No. 253,207.

Claim.—1. In a storage-battery grid unit, the combination of an inclosing frame, a plurality of horizontal ribs extending across said frame, a plurality of transverse ribs extending across said frame and intersecting said horizontal ribs to form compartments for lodgment of active material, projections being quadrilateral, the top and lower edges thereof being disposed in a common vertical plane, and a web on said ribs and projections, disposed in said vertical plane, substantially as described and for the purpose set forth.

817,517. Means for Attaching Canopy-Tops. William C. Rands, Detroit, Mich. Filed Aug. 2, 1905. Serial No. 272,304.

Claim.—1. The combination of a plate adapted to be secured to the outer surface of a vehicle-body and formed to conform to the shape of said surface, a socket on said plate, a hook-shaped bracket formed with a wedge-shaped end to engage the socket, and a seat for the bows of a vehicle-top formed at the bottom of the hook.

817,538. Compound Air-Pump. Howard Wixon, Chicago, Ill. Filed July 1, 1904. Serial No. 214,920.

Claim.—1. A compound pump comprising an outer, low pressure cylinder having an internal packing at its end, a high-pressure cylinder working through said packing and having an external piston working in said outer cylinder, a piston carried by said outer cylinder and working within said inner, high-pressure cylinder, said cylinders being in unobstructed communication at a point between said pistons, substantially as described.

817,539. Non-Slipping Tire and Brake. Joseph A. Young, New York, N. Y. Filed May 12, 1905. Serial No. 260,152.

Claim.—1. The combination of a wheel provided with a felly and with a tire wider than said felly, and a plurality of sector-like shoes each partially encircling said tire, said shoes being loose relatively to said tire.

817,555. Speed Indicator. Robert Hartmann-Kempf, Frankfort-on-the-Main, Germany, assignor to The Firm of Hartman & Braun A. G., Frankfort-on-the-Main, Germany. Filed June 27, 1905. Serial No. 267,243.

Claim.—1. In a speed-indicator the combination of a graduated scale, means for producing a continuous magnetic field, resonant bodies of magnetic material situated in said field and turned to correspond with said scale, and means for displacing the lines of force of said field for the purpose of imparting periodic magnetic impulses to said resonant bodies.

817,560. Tire for Vehicle-Wheels. James L. Heward, Cardiff, England. Filed Jan. 27, 1904. Serial No. 190,763.

Claim.—A sheath for the inner tubes of pneumatic tires, comprising a thin resilient metallic ribbon spirally wound in the shape of a hollow ring, said ribbon being bent transversely to conform to the peripheral contour of the tire to which it is applied.

817,592. Carbureter. Elder E. Shiess, Newport, Ark. Filed Aug. 7, 1905. Serial No. 273,164.

Claim.—1. A carbureter comprising an oil-tank, a horizontal carbureting-cylinder thereunder, containing a lining of capillary material and a series of horizontal transverse sheets of similar material, a series of pipes leading from the tank into the top of the cylinder, a splasher under each pipe, arranged to distribute the oil therefrom to a different sheet, and inlet and outer pipes in opposite ends of the cylinder.

817,632. Sprocket Wheel. James M. Dodge, Philadelphia, Pa. Filed May 23, 1898. Serial No. 681,467.

Claim.—1. The combination in a sprocket-wheel having a series of V-shaped teeth all lying in the same plane, with an open-link chain arranged to pass around said wheel, the teeth of the wheel extending into the open links of the chain and the transverse members of the chain bearing against the teeth, substantially as described.

817,668. Tire. John C. Raymond, New York, N. Y. Filed June 9, 1905. Serial No. 264,428.

Claim.—1. The combination substantially as herein described, of the rim, the rim-plate thereon, and provided at one edge with an upturned flange and having its other opposite edge unobstructed, the base-plate adapted to slip over said unobstructed edge and having its inner edge unobstructed and its outer edge provided with an upturned flange, the tire-frame having threaded openings for the securing-screws and provided at its outer edges with the outwardly-projecting inturned flanges for securing the cushion, and with the inwardly-projecting inturned flanges for engagement with the casing-ribs, said tire-frame being also provided with the central circumferential web having the outwardly-projecting flanges opposing the inwardly-projecting flanges at the outer edges of said frame, the casing provided along its edges with the circumferential ribs undercut for engagement with the outer inturned flanges of the tire-casing, and fitting in the circumferential undercut channels formed by said outer inwardly-turned flanges and the opposing web-flanges of the tire-frame, the cushion held to and extending around the outer side of the tire-frame, the inner tube within the casing and bearing against the outer side of the cushion, and the screws passed through the rim-plate and tire-plate and connected with the tire-frame, substantially as and for the purposes set forth.



Even with an inaccurate stop-watch the officer will make his case, if the automobilist hasn't a

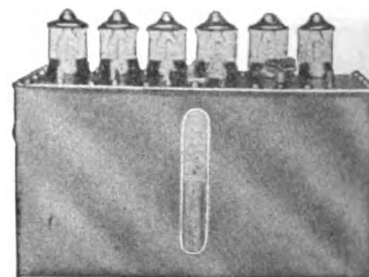
JONES SPEEDOMETER

on the dash of his car.

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132 West 32nd Street, New York.

FORCE FEED LUBRICATION.



Constant Sight Feed.

No Liquids.

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The Pullman of Motor Cars.

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Free of Repairs for One Year.

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Wire Mesh Base Construction

FOR MOTOR TRUCKS AND COMMERCIAL CARS.

Mr. H. A. Knox, President of the Knox Motor Truck Co., Springfield, Mass., writes:

"We are pleased to state regarding your Diamond Wire Mesh Base solid tires that we have recently given these tires a long and severe test, and the result, as far as we are able to judge, proves them superior in every way to any solid tire on the market.

"We have decided to adopt and recommend these tires for use upon our trucks during 1906.

"Yours very truly, H. A. KNOX."

The only scientifically correct tire offered for the purposes named.

EASILY APPLIED BY ANYONE WITHOUT THE USE OF MACHINERY.

IN SHORT—IT SOLVES THE PROBLEM FOR ALL TIME.

MADE IN TWIN TYPES ABOVE FIVE INCH.

Write for Special Catalogue.

THE DIAMOND RUBBER COMPANY,

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Change Tires 30 Seconds Goodyear Universal Rim

SUPPOSING you were 25 miles from home, and your tire exploded. And you hadn't another with you. And when you stopped at the garage, the man said: "I'm sorry, but I haven't a single tire of that make."

Wouldn't it make you mad? Of course it would, if you had an ordinary rim. But if you had a Goodyear Universal Rim, you would smile and say: "Bring on any old tire, as long as it's a clincher my rim will take it." And in less than three minutes you would be enjoying the scenery once more.

Because it isn't an all-day job to take off and put on a tire when your car has Goodyear Universal Rims. Just jack up the wheel and in 30 seconds the old tire is off, and in another 30 seconds the new tire—ANY kind—is on. You need no tools but the hands—and are "fixed up" and on the road while the man with ordinary rims is hunting for his

crowbars and levers. You see the flange comes right off on Goodyear Universal Rims, like Fig. 1.

And then a 30-inch tire (for example) slides right on to the 30-inch rim like Fig. 2, as easy as you would put on your hat. On an ordinary rim you would have to pry that 30-inch tire over a 31-inch flange.



Figure 2

You know what a profanity-inspiring job that is, and it doesn't do the tire any good, either.

Now this is all there is to taking off and putting on a tire when you have Goodyear Universal Rims. See how simple and easy it is.

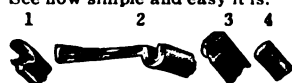


Figure 3

(rings), which can be adjusted to any clincher tire. No. 2 is the base of the rim attached to the felloe of the wheel. It can be used without fitting on any standard wheel built for the standard clincher rims.

No. 4 is the locking ring, which holds the flanges in place.

If you have decided to relieve yourself of all tire troubles and in consequence ride Goodyear Detachable Auto Tires, a section of the rim, when put together, would be like Fig. 4.

Or, if you ride an ordinary clincher tire, the rim section would look like Fig. 5.

The ring which holds the flanges in place is split at a point alongside the valve stem, like Fig. 6.

It can't be removed (and, of course, the tire can't come off) presses against it.

This flange is kept tight against the ring by a

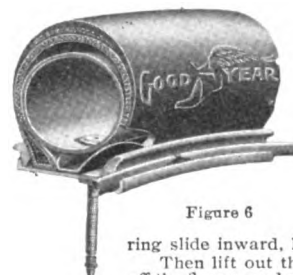


Figure 6

ring slide inward, like Fig. 8.

Then lift out the locking-ring, slip off the flange, and pull off the tire.

Time, 30 seconds. No tools but the hands.

Those who are weary of tire troubles are specifying Goodyear Auto Tires on Universal Rims. This equipment costs no more than the ordinary kind, and multiplies the pleasures of motoring many times.

Ask for our "Good News Book" and find out all the good points of the Goodyear Auto Tire and Universal Rim. It's of vital interest to the Manufacturer, Dealer or User who is satisfied with nothing but the best.



Figure 7



Figure 8

THE GOODYEAR TIRE & RUBBER CO., Grove Street, Akron, O.

Branches in following cities: Boston, 6 Merrimac St.; New York, 64th St. & Broadway; Chicago, 110 Lake St.; Cincinnati, 242 E. Fifth St.; St. Louis, 712-714 Morgan St.; San Francisco, Geo. P. Moore & Co., 596 Golden Gate Ave.; Los Angeles, W. D. Newerf, 932 So. Main St.; Buffalo, 719 Main St.; Denver, 220 Sixteenth St.; Detroit, 242 Jefferson Ave.

We furnish ALL SIZES of Tires with BAILEY TREADS if desired

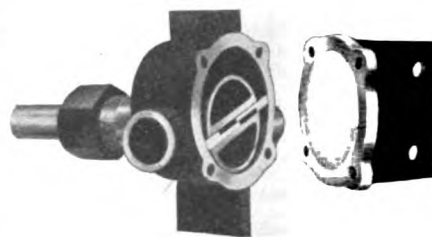
HAYNES COOLING SYSTEM

UNUSUAL attention has been given to the cooling of Models 'O' and 'R'—the 1906 Haynes cars—and unusual results have been obtained. On a 5000 mile journey not once did either of these engines get hot enough to cause a single explosion after the spark was shut off.

Two fans, one back of radiator, the other in fly wheel, sweep the air through the radiator and over the engine and the very large volume of water around the valves also greatly assists in cooling. The water pump is so simply and strongly constructed that it cannot get out of order. In spite of

the severe freezing weather on the January trip of Model 'R' from New York to Chicago—over 1100 miles there was no trouble whatever with cooling system, nor was any "anti-freezing compound" used.

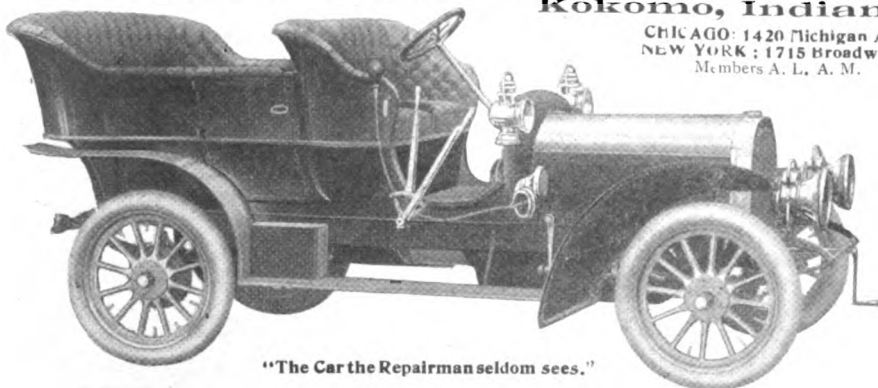
The Haynes is the highest-powered Shaft-driven Car built. In requesting catalogue, for prompt attention address Desk, D 11.



HAYNES AUTOMOBILE CO.

Kokomo, Indiana.

CHICAGO: 1420 Michigan Ave.
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Members A. L. A. M.



"The Car the Repairman seldom sees."

Model "R" Four-Cylinder Touring Car.

Vertical roller-bearing engines. Cylinders cast separately, $5\frac{1}{4} \times 6$ -inches, 50 H. P. An exclusive transmission that absolutely prevents stripping of gears. Positive cooling system. Individual and special lubrication. Master Clutch has metal faces and takes hold without jerking. Shaft drive. Exclusive universal joints that prevent wear on pins. Sprocket and Roller Pinion and perfect Rear Axle, all exclusive. Roller-bearings throughout. 108-inch wheel base, 54-inch tonneau, seating five people. Four to 60 miles an hour on high gear. Weight, 2,750 pounds. Price, \$3,500 f. o. b. Kokomo. Full equipment.

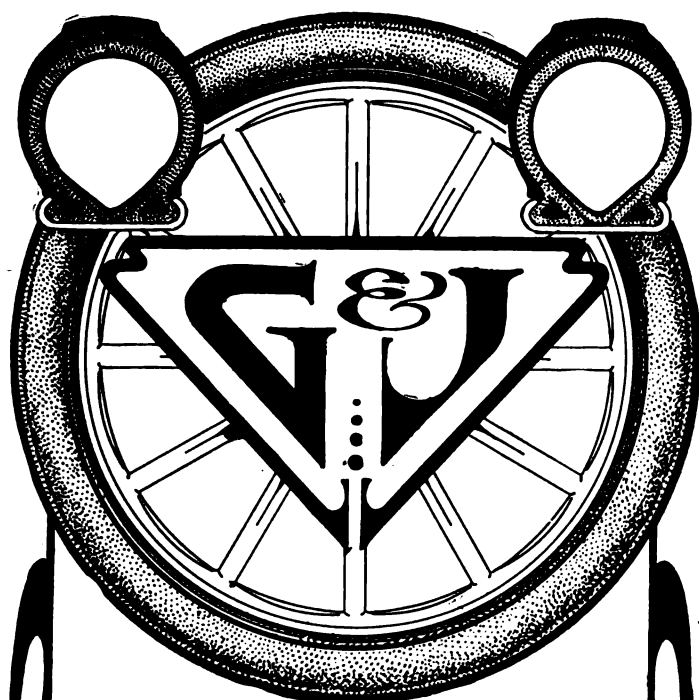
Model "O" Four-Cylinder Touring Car

Cylinders cast in pairs $4\frac{1}{4} \times 5$ -in., 28 to 30 H. P. Transmission, cooling system, lubrication, master clutch, shaft drive, universal joints, sprocket, roller pinion and roller-bearings and body same as on Model "R." 97-inch wheel base. 4-inch tires. Tonneau seating three persons. Four to 40 miles an hour on high speed. Price, \$2,250 f. o. b. Kokomo. Full equipment.

The manufacturer who equips his cars with *Veeder* odometers reaps a crop of mileage enthusiasts, who, in the face of the odometer readings, will make no unreasonable demands for replacements or free repairs.

THE VEEDER MFG. CO., Hartford, Conn.

Makers of Cyclometers, Odometers, Tachometers,
Counters and Fine Castings.



Equip your Motor Cars for the Season of 1906

WITH

G & J TIRES

and obtain the highest degree of satisfaction with greatest freedom from tire trouble.

**ONE CURE
WRAPPED TIRES,
VULCANIZED IN OPEN STEAM
BETTER THAN OTHER TIRES
BUT COST NO MORE.**

Write for catalog giving full information.



Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

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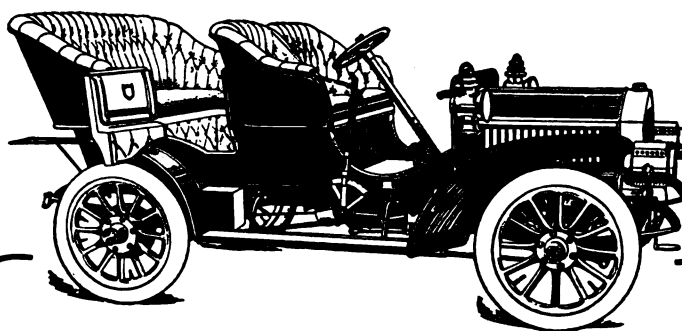
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MODEL G.

2-Cylinder Opposed, 18 H. P.

Price, \$1600.

2-Cylinder opposed motor located under the hood.

Sliding gear transmission, 3 speeds forward and reverse.

Bevel gear drive. Powerful double acting brakes expanding in drums attached to rear wheel—double acting band brake on transmission shaft. Speed 35 miles an hour. Seating capacity five.

The Pope-Hartford Model G 2-cylinder Touring Car perpetuates our successful 2-cylinder car of last season with important improvements suggested by a year's service, which makes this car the peer of any 2-cylinder car in the world.

Compare it point for point with any other 2-cylinder car on the market and let us prove these statements by giving you a demonstration.

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San Francisco, 451 Mission Street.

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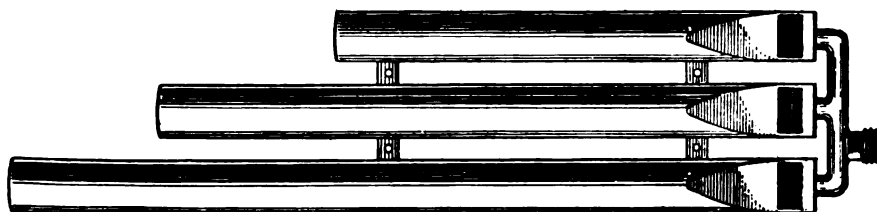


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OTHERS WARN; WE PROTECT.

While others may issue warnings, we issue guarantees of protection to all purchasers of



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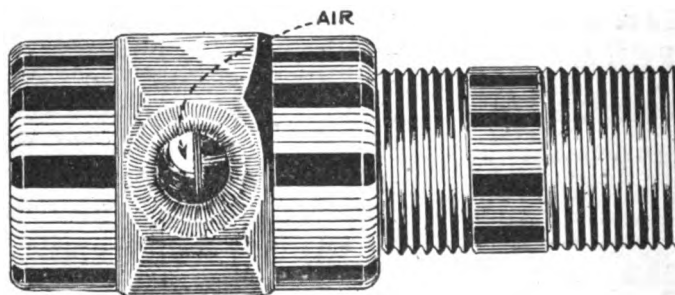
PRICE, \$12, including our new air regulator valve.

This horn licensed to attach under U. S. Patent No. 783,784, covering any horn blown by the exhaust from a gas engine. Look for that patent number when you purchase. It's a guarantee of protection from litigation.

OUR POLICY:

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Removes the discordant screech from any exhaust blown horn. FURNISHED WITHOUT EXTRA CHARGE ON THE EXHAUST HORN. Price, ready for application to any other horn, \$5.

SOLD BY ENTERPRISING DEALERS EVERYWHERE OR DIRECT BY THE MAKERS.

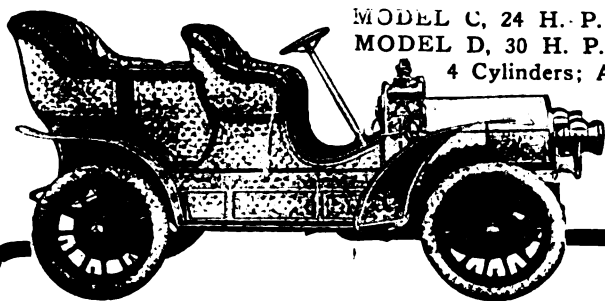
NEW JERSEY TUBE COMPANY,

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CAPITAL, \$500,000.

NEWARK, N. J.

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MODEL C, 24 H. P. \$2500
MODEL D, 30 H. P. \$3000
4 Cylinders; Air Cooled.

Write
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The Prize Oiling System.

When you don't know that you have a stomach, it's a good one.
"The oiling system is certainly the most perfect that has come to my notice, for you really forget there is such a thing."—O. F. Pearson, Pres., Big Four Lumber Co., St. Louis, Mo.

The Marmon oiling system is self-contained. It has no adjustments and needs no attention other than replenishing at long intervals. More than 500 miles on one gallon. The lubrication is thorough, even to the piston-pin bearings.

Double Three-Point Suspension. Rigid Shaft Drive (without Cardan joints). Absolutely successful, dependable air-cooling.

High grade in the fullest sense of the term.

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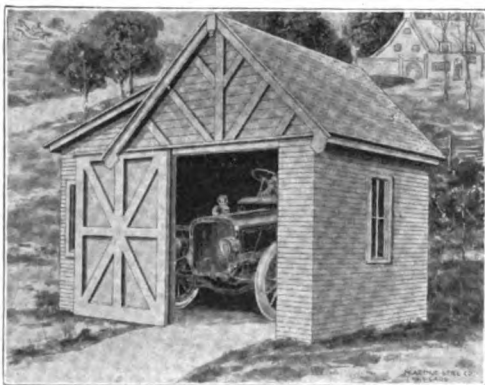
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**This Style Complete \$100.
Will Accommodate any Tonneau and Top.**

After you buy your motor car the first thing is to provide a place to keep it, **We Have Them.** A descriptive catalog will be sent to automobile owners. **Write Today for Booklet No. MII.** We have been making Portable Houses for Universities and large Institutions all over the country to their satisfaction.

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These homes are built in sections and are shipped knocked down and can be put together in two hours by any one who can use a screw driver.

They are Constructed of the best Southern Pine, dry seasoned, perfectly matched, weather and wind proof, only needing painting, to be an ornament when placed in position on any lawn. Other houses built of sheet steel from \$50.00 upward.

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The Incomparable WHITE

The Car for Service.



ALL ROADS LOOK ALIKE TO THE WHITE

The White, owing to the advantages inherent in its unique system of generating and utilizing steam as a motive power, will take you anywhere at any time—it is a touring car in the fullest sense of the term. If you own a White, you need not wait until favorable weather and the County Supervisors make the roads hard and smooth, nor need you confine your touring to the main highways. All the wild and beautiful spots of Nature are accessible to the driver of a White, regardless of road conditions. Buy a White and see the country as you have never seen it before, and as you cannot see it in any other way.

One other point of interest, the White, because of the simplicity of its mechanism, is particularly adapted for the man who wishes to drive and to take care of his own car.

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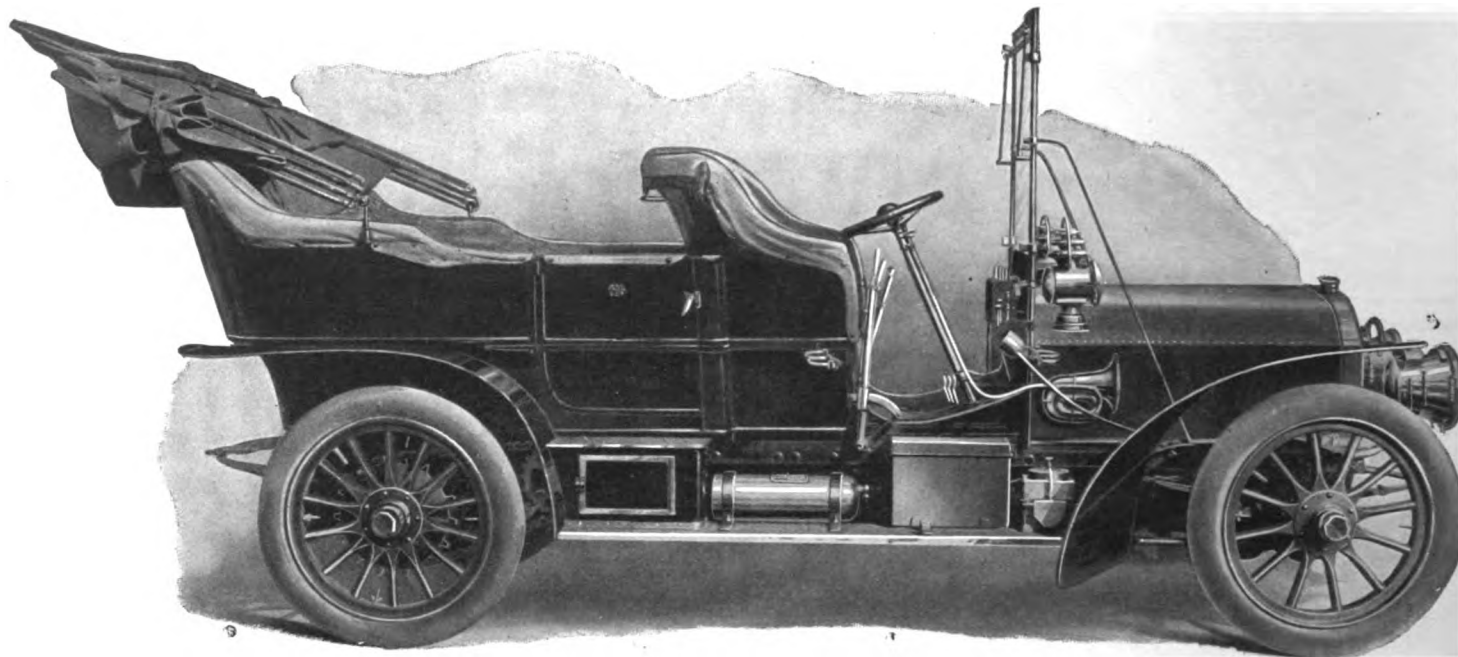
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— ball-bearings secure
perfect transmission of
power from engine to
wheel.

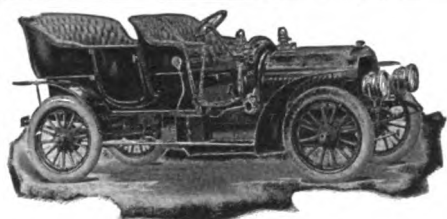


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\$3500.00

40 H. P.

THE ROYAL MOTOR CAR CO.

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NO matter how fast or how slow you go, the Auto-Meter tells the speed at which your Automobile is traveling with unflinching correctness. It is actuated by the same *unchangeable magnetism* which makes the Mariner's Compass unflinching and certain *forever*. The Auto-Meter is the only successful *magnetic* indicator because there is just one way in which magnetism can *successfully* be used, and *we have patented that way*. That means that the only indicator you can depend upon for *permanent reliability* is

THE WARNER AUTO-METER

(Registers Speed and Distance)

It registers any speed from $\frac{1}{4}$ mile to 60 miles per hour. It tells how far you have gone on the *trip* and gives total miles traveled during the *season*. It goes on the dashboard, where it can be read from the seat, and fits any Automobile. It's as sensitive as a compass and as *solid as a rock*. It is uninfluenced by any shock which would not ruin your car. It is accurate when you get it, and is

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Locomobile

The *Locomobile* Company of America, Bridgeport, Conn.

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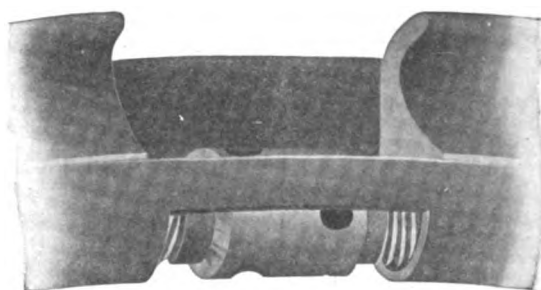
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Automobiles

REPRESENT AMERICAN SUPREMACY.

Gasolene: 18 H. P., 5 Passengers, \$1,750. 24-28 H. P., 5 Passengers, \$3,000. 40-45 H. P., 5 to 7 Passengers, \$4,500 to \$5,500.

Electric: Runabout, \$900. Victoria Phaeton, \$1,350. Broughams, Hansoms, Landaulets, Delivery Wagons and Trucks.

Catalogues on request; also illustrated pamphlets, "Fashioning A Crankshaft," "Columbia Chrome-nickel Steel," "Transmission, Etc." "Consistent Differences."

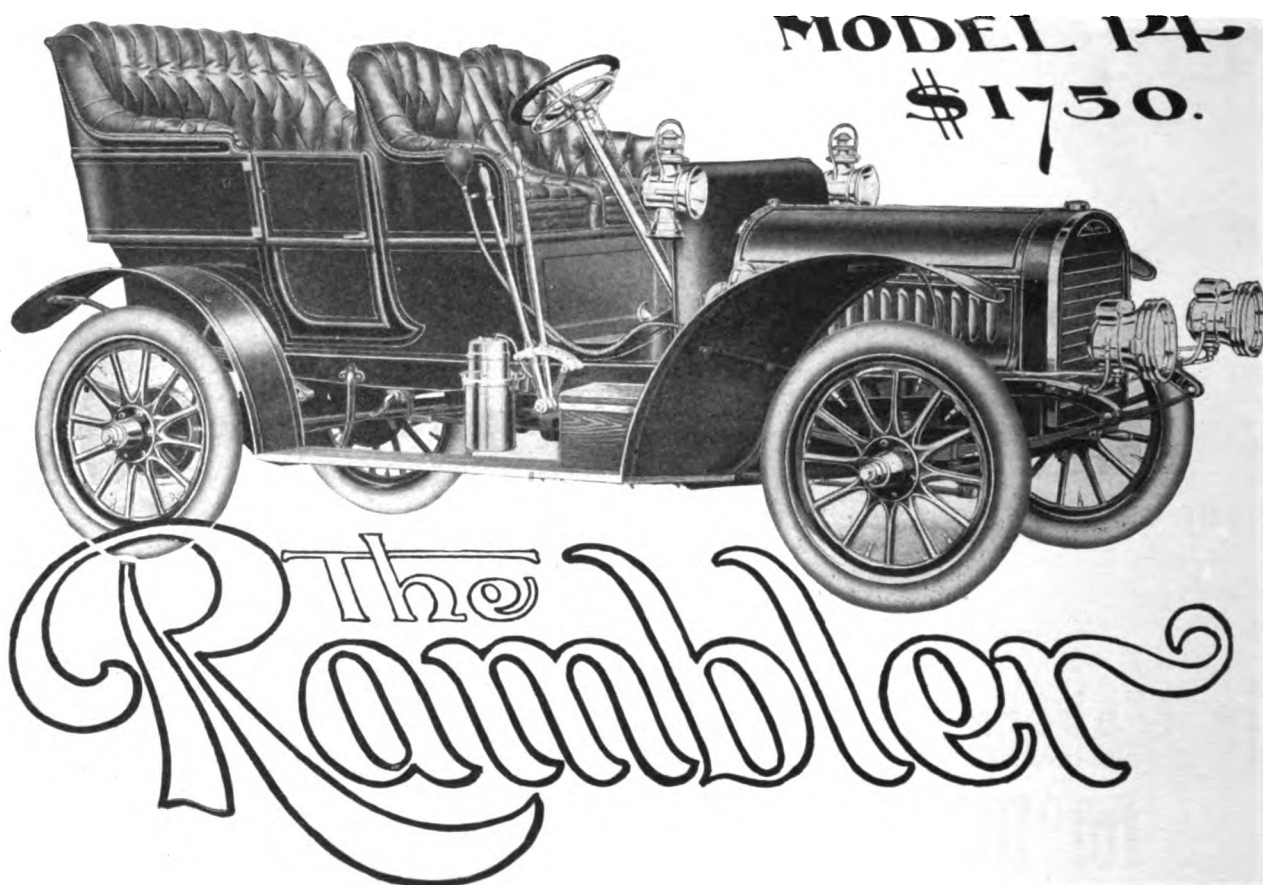
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THE CAR THAT IS RIGHT in Design, Material and Workmanship.

The highest possible grade of material, handled according to the design of skilled and experienced engineers, by expert mechanics in the largest and most thoroughly equipped automobile factory in the world.

There is no part based on guess work or on what the other fellow does, and the costly experimental work is done in the factory and not by the purchaser.

It is **RIGHT** in the beginning, **RIGHT** when delivered and stays **RIGHT** all the time.

These are the features of primary importance but the facilities of our enormous factory enable us to give you

THE RIGHT CAR AT THE RIGHT PRICE.

Will be cheerfully shown and demonstrated at our various Branches.

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Thomas B. Jeffery & Company

THE MOTOR WORLD.

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE
AND KINDRED INTERESTS

Volume XII.

New York, U. S. A., Thursday, April 26, 1906.

No. 13

BIG CREDITORS ARE BEATEN

Lawyers for Bankrupt Vehicle Equipment Co. in Control—Assets are Ordered Sold.

Despite the illuminating and suggestive probing by the Creditors' Protective Committee—made up of most of the large creditors—their efforts to influence the selection of a trustee for the bankrupt Vehicle Equipment Co., met with defeat at the general meeting of the creditors in Long Island City, N. Y., on Tuesday, 24th inst.

The attorneys representing the bankrupt had not been idle. They had gone among the small creditors and on the "show down" held an overwhelming majority of the votes necessary to control the election of the trustee. They were very "magnanimous," however, and waiving the right to elect, left the choice of the trustee to Referee Tipling, who presided at the meeting.

Mr. Tipling promptly appointed Charles O. Dewey to fill the office, Mr. Dewey also being the receiver. The Protective Committee's lawyers objected to Mr. Dewey's competence to serve, which objection gives them the right to lodge an appeal—a right of which they admit, however, they are not likely to take advantage.

In adjourning the creditors' meeting, Referee Tipling let it be known that it is the desire of the court that the bankrupt's property be disposed of as early as possible and this probably will be done within the next three weeks.

As the property is said to be worth scarcely \$100,000 and as the estimated liabilities are \$1,400,000, the sale is not likely to add greatly to the creditors' happiness or treasuries.

Kansas City to go to Kenosha.

The Kansas City Motor Car Co., of Kansas City, Mo., which is an outgrowth of the Caps Bros. Mfg. Co., has decided to move to Kenosha, Wis., contracts for the erection of a large factory just north of that city having been signed last week. The promoters who have made the contract with the company have taken 300 acres of land and it will be divided into lots with a view of creating a model factory village. The Kansas City Company is to receive a prac-

tical bonus of \$100,000 and is to erect a plant costing three times that amount. The company will continue the manufacture of heavy automobile trucks and delivery wagons. George K. Wheeler, the general manager of the company, was in Kenosha last week and stated that the company would build a factory costing \$250,000 and that it would employ from 300 to 400 men.

Truscott Invades Automobile Domain.

The Truscott Boat Mfg. Co., of St. Joseph, Michigan, has decided to add automobile supplies and parts to its products. The new shop will employ about one hundred mechanics and work will begin on the new line next month. A specialty will be made of automobile engines. The Truscott Boat Mfg. Co. is one of the largest manufacturers of small boats in the country, and for some time it has been making a specialty of motor boats and marine engines.

G & J to Open New York Branch.

The G & J Tire Co. are making ready to establish a branch of their own in New York, having leased quarters at 16 West Sixtieth street for the purpose. Arthur T. Smith, who so long has looked after the G & J interests in this territory, will be in charge of the new place. Heretofore the G & J Co. has shared quarters with the Hartford Rubber Works Co.

Solar Locates Eastern Factory.

The Badger Brass Mfg. Co. finally have selected the location for their Eastern factory, which has become necessary because of the call for Solar lamps. The plant will be located in the David Williams building, Eleventh avenue near Thirty-sixth street, New York, Treasurer Welles of the Badger Co., having this week executed the lease for the premises, which will be immediately equipped for lamp making.

Witherbee has a new Treasurer.

W. H. Reid has resigned as treasurer of the Witherbee Igniter Co., New York, and disposed of his holdings. He has been succeeded by A. B. Elliott, an old General Electric man, who brings with him an influx of new capital and ideas that will be felt in the expansion of the business.

MANY CARS WERE SAVED

Before the Stores were Destroyed in San Francisco—Reports Arrive Slowly.

Although full and definite advices from San Francisco, concerning the extent of the automobile trade's losses by the appalling earthquake and the subsequent fire that swept that city last week, are not obtainable, there is small prospect that the trade fared any better than the other businesses.

Save a few garages located in the outlying districts, all of the important stores and branch houses were situated within the stricken section. Telegrams that have escaped the general congestion make it plain, however, that in a number of instances, at least, there was time enough before the fire reached and destroyed the buildings, to remove all or a number of the cars stored therein.

Thus, the Locomobile Co. have received word from Adolph Rosner, one of their traveling mechanical experts who was in San Francisco at the time of the disaster, that all of the cars in the Locomobile agency were saved. Rosner's message came from Sacramento and was three days in transit and while the information concerning the cars was explicit enough it was coupled with a statement "Lost everything" which was not thoroughly intelligible.

Cuyler Lee, the Cadillac agent, reports the saving of 21 Cadillacs, which were taken over by the authorities for relief work.

The White Co.'s branch was destroyed and headquarters have been set up in the Oakland store, 470 Eleventh street—but whether anything was saved from the flames is not known.

The Pope Mfg. Co.'s branch was wholly destroyed and as it carried not only a large stock of automobiles, but of bicycles and sundries of all sorts, the loss probably will exceed \$250,000.

T. B. Jeffery & Co. are yet without advices from the unfortunate city, but are satisfied that there is nothing left of their branch, which had been just completed and occupied. But as it was located in the residential section, on Golden Gate avenue, near Van Ness street, which was not within

the first day's sweep of the flames, ample time must have elapsed to save the Rambler cars in stock, of which there were more than 43 on hand at the last report, Friday, 13th inst. Another carload reached Oakland on the 16th, the day before the catastrophe and there are hopes that this escaped. Two other carloads were overtaken en route and diverted to Los Angeles.

The Knox Automobile Co. is also without advices, but is concerned only about a \$4,500 'bus constructed for the Palace Hotel and shipped draft against bill of lading and which was due to reach San Francisco at about the time of the disaster.

The Royal, Winton and Packard companies are among the others who are without definite advices.

Practically all of the tire companies maintained branches which were located well within the fire swept zone. There is small hope that any of them escaped. The G & J Tire Co. and the B. F. Goodrich Co. already have been heard from. Their depots with their entire stocks were wiped out. G & J have established temporary quarters in Oakland and Goodrich already has shipped goods to begin anew.

So far as known, none identified with the automobile trade were killed or injured. There was some concern about the safety of E. R. Thomas, the Buffalo manufacturer, who was visiting San Francisco, but a wire from Winnemucca, Nevada, stated that he had left the city the day previous.

What was Shown at Denver.

Automobile dealers in Denver, Col., held their first automobile and moving picture show last week, the entertainment opening in Coliseum Hall Tuesday and continuing throughout the week. The exhibitors were as follows: Brown & Beck, Orient buckboards and Apache motorcycles; Colorado Automobile Co., Cadillac and Pope-Toledo cars; Consolidated Supply Co., accessories; Colburn Automobile Co., White, Locomobile, Autocar, Pope-Waverly and National cars; E. R. Cumbe, Marian and Mitchell cars; Fernald Automobile Co., Maxwell cars; O. P. Fritchle, Rauch & Lang electric cars; Herbert Havens, Lambert car; Mathewson Automobile Co., Thomas, Olds, Columbia and Woods cars; Reo Automobile Co., Reo and Moline cars; Smith Automobile Co., Smith Cars; Smith Automobile Co., Logan cars; S. C. Shearer Automobile Co., Holsman cars; Studebaker Bros' Mfg. Co., Studebaker cars; F. W. Spacke Machine Co., parts; S. M. Wood, Stoddard-Dayton cars; A. T. Wilson, Ford, Wayne, Grout, Marian and Columbus cars.

Light Building a Big Addition.

Extensive improvements are being made at the plant of the Light Manufacturing Co., Pottstown, Pa. A four-story brick building, 71x100 feet, is being put up for a machine shop, and a pattern shop, 40x60 feet, is among the additions.

In the Retail World.

Matthew Anheuser has opened up in Green Bay, Wis. He has the agency for Rambler cars.

George Peters will erect a garage at Hornellsville, N. Y. It will be located at Cass and Union streets and will measure 71x40 feet.

The Bronx Automobile Co., of New York City, has leased a plot of 1,000 square feet at the corner of Boston Road and Jefferson street. A garage will be erected.

Fred Bowman is to open a garage at Muscatine, Iowa, shortly, which will measure 70 x 60 feet. He has taken the agency for the Winton and Studebaker cars.

George A. Youlden, of Hartford, Conn., has formed a partnership with Charles T. Fletcher, of Worcester, Mass., and the two will open a garage in North street, Ware, Mass.

Smith & Swan have opened their commodious garage at 276-278 Main street, Norwich, Conn. The building measures 100 by 30 feet. Olds and Cadillac cars are their leaders.

V. W. Eisenrath has rented for a term of years the private stable of James R. Roosevelt, at 241 West 107th street, New York City. A garage will be maintained, it is stated.

Seabright, N. J., is to have a new garage. William Brennan has just completed a large building on Church street, which affords 2,500 square feet of floor space, for the storage and repair of cars.

Dr. M. J. E. Moore and O. E. Vestal will open a store on Baum street, near Beatty, Pittsburg, Pa. Automobile accessories will be carried and a shock absorbing device invented by Vestal, will be made.

Arthur S. Winslow, who has taken the agency for southern Westchester county, New York, for Cadillac cars, with headquarters at New Rochelle, will shortly open a branch agency in Port Chester.

I. C. Kibbe's building on Main street, Chippewa Falls, Wis., has been sold and will be converted into a garage. M. S. Bailey, Robert Clark, George McCall and A. E. Walrath are the purchasers.

Work has begun on the new Dudley garage at the corner of William and Main streets, Springfield, Mass. The building will have a 45-foot front on Main street and extend 85 feet west on William street. It will be of brick and cement construction.

A license has been granted to the North Shore Automobile Company to erect a garage at 44 Humphrey street, Lynn, Mass. Property owners at first were adverse to its erection, but at the hearing of the town council the objectors did not put in appearance.

Oakland, Cal., now has a well equipped garage, the Pioneer Automobile Co., of San Francisco, having established a branch at the corner of Twelfth and Oak streets. W. J. Freeling is the manager and will look

after the interests of Winton, Buick, Olds and Mercedes cars, which are carried.

The Chester Automobile Co., of Chester, Pa., has asked for a charter to deal in and repair automobiles. The company will take possession of and remodeled the old Moya building at Broad and Crosby streets. Harry VonH. Stoever, Howard H. Houston and George Bunting are interested in the venture.

The Week's Incorporations.

St. Louis, Mo.—Kobusch Automobile Co., under Missouri laws, with \$1,000,000. Corporators—George J. Kobusch, H. F. Flovel, George H. Mills and W. S. Miller.

Chicago, Ill.—Adams-Farwell Co., under Illinois laws, with \$2,500 capital; to deal in automobiles. Corporators—Eugene Adams, Herbert Adams and F. O. Farwell.

Detroit, Mich.—St. Clair Motor Co., under Michigan laws, with \$35,000 capital; to manufacture gasoline motors. Corporators—Harry D. Baird, Earl Roscoe Ryno.

Brockton, Mass.—Brockton Motor Exchange Co., under Massachusetts laws, with \$30,000 capital. Corporators—Oscar A. Campbell, Harry Lyon and F. H. Marshall.

Portland, Oregon.—Pioneer Automobile Co., under Oregon laws, with \$1,000 capital. Corporators—Edward L. Estes, Calvin Hellig, Edward Hellig and H. F. Estes.

Louisville, Ky.—The Prince Wells Co., under Kentucky laws, with \$5,000 capital, \$3,000 debt limit; to deal in automobiles. Corporators—Prince Wells, H. L. Wells and M. Ehrle.

Cleveland, Ohio.—Boulevard Garage Co., under Ohio laws, with \$10,000 capital; to deal in automobiles. Corporators—G. Walter Brunner, H. J. Dunn, C. O. Harmon, H. P. Hoffman and Wilson H. Levens.

Des Moines, Ia.—The Sears-Nattinger Co., under Iowa laws, with \$10,000 capital; to deal in automobiles and do a general garage business. Corporators—W. W. Sears and O. R. Nattinger, both of Des Moines.

Newtonville, Mass.—The Duo Motor Co., under Massachusetts laws, with \$250,000 capital; to deal in motors, engines, etc. Corporators and officers—C. F. Whitney, president, Newtonville; N. H. Harriman, treasurer, Roxbury.

South Bend, Ind.—South Bend Automobile and Garage Co., under Indiana laws, with \$5,000 capital; to manufacture automobiles and do a general garage business. Corporators—Harry D. Johnson, Nelson J. Riley, George M. Studebaker, E. L. Kuhns, and C. A. Carlisle.

Jersey City, N. J.—De Luxe Automobile Co., under New Jersey laws, with \$125,000; to manufacture automobiles and all kinds of mechanically-propelled vehicles. Corporators—Ralph R. Caldwell, H. O. Coughlan, John R. Turner, Henry T. Hunt, W. C. Caldwell and Stanley H. Merrell.

PLANS OF OPEN AIR SHOW

**Cars in Tents, Sundries under Grandstand
—Admission Fee Fixed at Fifty Cents.**

Detailed plans of the show that is to be the foundation of the Open Air Carnival, to be held by the New York Automobile Trade Association at the Empire City track, on May 24, 25 and 26, were issued this week. They disclose that accessories will be confined to the space under the grand stand which will be sold at 25 cents a square foot, while cars and motors will be housed in the three large tents to be erected in the field bounded by the track, space in which will be sold at 30 cents per square foot. In the latter case space will be sold in units measuring 10 by 20 feet, while the accessory space units will be 16 by 14 feet in the east end and 10 by 10 feet in the west end.

There are 14 of the smaller space units numbered from 1 to 14 in the east end of the grand stand and 16 of the larger size numbered 15 to 30 in the west end. The 10 by 20 foot spaces in the tent are numbered 31 to 104 and are ranged in two single lines against the sidewalls with a double line down the center and four spaces at each end between the entrances that are there provided, thus making a single wide aisle. In the case of the accessory exhibits in the grand stand, a wide aisle will be run between the smaller spaces and there will be a narrow aisle on each side of the larger ones.

The drawing for spaces and allotments will be made on May 10. With few exceptions the rules drawn up for the regulation of the exhibition are those usually in force at the annual indoor shows, such, for instance, as the prohibition against sub-letting space, or exhibiting anything other than articles of the exhibitor's own manufacture or that he sells in the usual course of business, also the provision of a uniform style of decorations and signs which will be undertaken by the management. In this case, however, the exhibitors will be permitted to do any additional decorating they wish, provided its style is approved by the Carnival Committee.

Admission tickets will be 50 cents each, while season tickets good for the three days of the exhibition will be sold at \$1 each, no trade or cut-rate tickets and no coupon books being issued. Fifty per cent. of the net profits of the show will be paid into the treasury of the New York Automobile Trade Association and the remainder will be rebated pro rata to exhibitors who are members of the association at the time of space allotment, in proportion to the amount of space taken.

The New York and New Jersey Lubricants Co. will next week remove to new and larger quarters at 332 Broadway, New York.

Kobusch Forms Separate Company.

The Kobusch Automobile Company, of St. Louis, Mo., which is the style under which George J. Kobusch, president of the St. Louis Car Company, has incorporated for the automobile end of the railway car company's business, which has been conducted for the past year or so. The Kobusch Company's capital stock is \$1,000,000, divided into 10,000 shares of \$100 each. The establishment employs about 400 men. All but three shares of the capital stock are owned by George J. Kobusch. The other stockholders are: Harry F. Vogel, vice-president of the St. Louis Car Company; George A. H. Mills, general manager, and W. S. Miller, manager of the automobile plant, who have one share each.

Murillo to Begin Business.

Within a week the Murillo Mfg. Co., of Marion, Ind., which has remodeled the old Mead power house for an automobile factory, will begin operations. The company, which will manufacture delivery wagons and three-ton trucks, is composed of George C. Power, general manager, formerly with the Haynes-Apperson Company, of Kokomo; L. W. Coppock, designer, who worked in that capacity at the Kokomo factory, and Wilbur Meyers. The machines to be made by the Murrillo company will employ a two-cycle motor, designed by Coppock.

A-Z Takes a Whole Building.

Prosperity having smiled on the A-Z Co., New York, they are preparing to remove from 520 West 37th street to 527-529 West 56th street, which is now being altered to meet the needs of the new occupants. The A-Z people will occupy the entire building and with more room and increased facilities, they naturally will be better positioned to meet the call for radiators, hoods, tanks, mud-guards, mufflers, etc., and to do aluminum brazing and beating, which is one of their specialties.

Cincinnati Money may Revive Peckham.

According to reports from Kingston, N. Y., there will probably be a reorganization of the bankrupt Peckham Motor Mfg. Co., and in addition to building trucks for railroad cars the new company will manufacture automobile trucks. It is stated that G. P. Altenberg, a Cincinnati financier, is in the town looking over the prospects and that he will invest \$100,000 to get the works again in operation under the name of the Kingston Manufacturing Company.

Hambrick will Leave Huntingdon.

After many concessions on both sides, the Commercial Club of Washington, Ind., finally has "landed" the Hambrick Motor Car Co., of Huntingdon, W. Va., which has been home-seeking for nearly a year. The "prize" was secured upon the Commercial Club's guaranteed bonus of \$25,000.

CREDITORS WERE DEFRAUDED

**Court so Rules in Remington Bankruptcy—
Stockholders Must "Make Good."**

Like echoes from a long-forgotten past, were the findings of fact and law by Judge Ray in the bankruptcy proceedings of the Remington Automobile and Motor Company, of Utica, N. Y., brought by the trustee for the purpose of ascertaining the liabilities of some of the stockholders, which were filed last week. The litigation to recover on unpaid stock subscriptions for the benefit of the creditors has been before the court for some time and is not yet settled.

The trustee in bankruptcy filed a petition with Judge Ray asking for an order that certain persons designated as stockholders show cause before the court on proposition: "Why any agreement or contract between said stockholders and said bankrupt corporation whereby any of said shares of stock issued at less than their par value should not be vacated and adjudged to be void and fraudulent as to the creditors of the bankrupt corporation and why the trustee should not be directed to levy an assessment or call of 100 per cent. upon each and every share of the capital stock of said corporation, which has been issued at less than its par value, less any amount which may have been heretofore actually paid upon said shares either in money or money's worth.

Judge Ray held that all the Ilion stock subscribers except John Bates, A. T. Sheldon and Carrie Jepson are liable for \$75 on each share of stock held by them. Mr. Bates was liable for \$50 a share and the Sheldon and Jepson stock, reissued to W. E. Taber, was also liable for \$5 a share. The court holds that the payment by the Remington Company to the Quick Automobile Company of New Jersey of eighty shares for \$6,000, in property, was a fraud upon these creditors, and that it should be set aside, and that all such shares of stock are liable for \$25. Newspaper contracts were also held to be a fraud against the creditors and this class of stockholders were held for \$25 a share. As to all other parties, including the Chamber of Commerce stockholders, none are liable for any unpaid stock in the Remington Company and the court holds that the proceedings brought by the trustees should be dismissed. The appeal will be in behalf of the trustee.

Rogers Decides to Quit.

A petition for dissolution has been filed in Superior Court by the Rogers Automobile Co., of Springfield, Mass., the signers representing a majority of the voting and outstanding stock. The petitioners say that there are no outstanding debts or liabilities and that the company has ceased to do business. The company set out to build cars but failed to produce any.

FISK TIRES



SIMPLE SAFE

These tires are built particularly for those who wish to avoid all kinds of exasperating tire troubles,

WHO BELIEVE IN LIFE INSURANCE,

and who are desirous of economy in tire maintenance.

"AN EVER SATISFACTORY ARTICLE WITH NO DISAPPOINTMENTS."

THE FISK RUBBER CO. CHICOPEE FALLS, MASS.

CADILLAC

SINGLE CYLINDER CARS

"A Dead One."

Yes, That's what some unscrupulous competitors (?) would have you think. But, let's see.

Up to and including March 31st, we had shipped since January 1st, just 1,057 of these same single cylinder Cadillacs (these "dead ones"). In fact all but a very few of them were shipped since February 10th, some days running over 40 cars (one complete automobile every fifteen minutes). (These "dead ones").

Of the above, we shipped to one dealer in a large city where competition is supposed to be strongest, 82 (of these "dead ones").

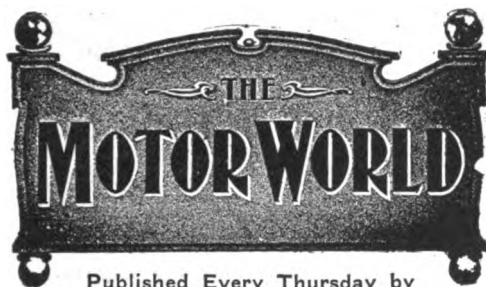
In the face of this output, we are over four hundred cars behind specification dates, largely because so many of our dealers have increased their original orders — (On these "dead ones," mind you.)

We are already again increasing our facilities and commencing in April and during the season will be turning out 50 or more cars per day (These "dead ones.")

Our Catalogue tells all about them (The "dead ones").

CADILLAC MOTOR CAR COMPANY,

- Digitized by Google **Detroit, Mich.**



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Those who are interested in motor vehicles will find the facilities and information of our office always at their command.

**To Facilitate Matters Our Patrons Should
Address us at P. O. Box 649.**

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NEW YORK, APRIL 26, 1906.**San Francisco and the Automobile.**

In the days of its dire distress, the heart of the world has gone out to San Francisco. During such dark hours, and despite the dawning of a newer and greater city, to discuss profoundly the effects of the dreadful disaster on any particular profession or industry savors too much of sordid sacrilege. It is enough to say that not only will the draining of the banks due to the westward flow of tens of millions of dollars be felt in the East, but that that few tradesmen are likely to feel the effects of the disaster more severely than those engaged in the automobile business. In a general way, the automobile is still viewed as a luxury which it is easy to forego; and men engaged in rebuilding shattered fortunes must perforce forego such luxuries. Because of the fact, the destruction by earthquake and fire, however great, will represent but the smaller loss which the automobile interests will sustain. The loss of prospective business is what will hurt worst and extend over the longer period of time.

But whether or no, the hearts of the San

Franciscans themselves must warm toward the motor car. As a means of deliverance from danger and death, as an untiring medium of intercommunication and for the works of relief and protection, the automobile has written for itself such passages as must command the attention and admiration of the civilized world. One of the wires from the stricken city best expressed this admiring appreciation in these words: "What would we have done without it?"

Beginning with the day of the earthquake, such cars as were available were used for the transportation of troops and detachments from point to point in the devastated sections of the city, in removing the dead and injured to places of safety, carrying supplies, and, in those terrible moments when all other available methods had failed to check the spread of the flames and the use of dynamite was resorted to in the vain hope of creating an effective insulation between the fire and the unburnt district, the automobile was called into requisition to carry the powder from the Presidio to the points where it was to be used.

When harnesses and wagons had been destroyed, when horse fodder was not to be had within miles of the burning city, when street car lines were halted, and streets blocked with debris, it was the automobile which came to the fore and did what no other type of vehicle could do for San Francisco. Finally, in order to hurry the work of transporting supplies, all automobiles and all garages left standing were commandeered, a special guard of sixty soldiers was placed in charge of the stock of gasoline, and arrangements made to use every available machine. Owners wishing to place their cars at the disposal of the authorities, were allowed all necessary supplies and an orderly was detailed to accompany them to see that they were granted adequate protection, and that their service was well performed.

It required some emergency to bring out the ever readiness and willing response of the automobile. Its utility, in a certain broad sense, and its serviceability under adverse conditions already were recognized, and its capacity for continuous unrelenting work has been proved. But the importance of the fact that it need not be harnessed, that in driving it, there is no animal will power to contend with, that it could be driven through flame-walled streets and over scorching pavements obedient to the hand at the wheel, and that it required no

rest or feed at stated intervals, without which it would fail of its duty, was emphasized as never before.

Seeking the Owners' Opinions.

No matter how gruelling a test the manufacturer of an automobile subjects its very poorest part to before actually adopting it—and it must be admitted that few makers of standing fall short of their duty in this respect, the strains which must be borne by it in the course of steady service so greatly exceed those suggested by his most conscientious efforts in trying out, that some means of supplementing the usual cut and dried process would seem to be necessary, if the best results obtainable are to be had. And as a means of ascertaining just how the outcome of the factory tests and the results of a season's wear tally, nothing could be simpler or more effective than the plan followed for some years by one or two of the old bicycle makers. Testing is no less a trying process for the material that enters into the high-grade bicycle than it is for the various metals that go to make the automobile of a corresponding class, but the makers in question added another safeguard by sending out hundreds of letters at the end of each year asking individual riders what parts of the machine had proved adequate in their estimation.

Naturally the liberal scope granted the rider very frequently afforded an opportunity for the latter to give play to his imagination and many of the answers received were purely works of fiction. Opinions differ as widely and as frequently as the individuals who give expression to them and the liberty accorded often resulted in replies that were ludicrous in the extreme and as was to be expected from anything of the kind, the causes which "in my estimation" brought about a breakdown or showed evident signs of weakness, made the great bulk of the correspondence valueless. Then again, the best system of parts inspection ever devised falls short of perfection and a greater or less number of opinions were based upon the default of parts that had given way through some latent and probably undiscoverable defect. But, after having sifted the chaff from the wheat, there was considerable of practical value to be gleaned from what remained.

And so far as can be seen, there is no reason why a similar plan could not be utilized in the case of the automobile with far better results than could be obtained

with the bicycle, for more reasons than one. First, because the mechanism of the up-to-date automobile represents almost as much machinery as entered into a hundred bicycles with that many more chances of defection in the numerous small parts, and secondly, because the average automobile owner is either a pretty fair mechanic himself, or if not, employs a man who is, or at least is supposed to be, and a far greater proportion of the answers to such an inquiry would be based upon actual knowledge and experience.

It appears to be only reasonable to consider that the part which under test shows a factor of safety of several hundred per cent. over what it is to be actually called upon to withstand, should be proof against any strain to which it could possibly be subjected in service. And ordinarily this is the case, but it should be borne in mind at the same time that such parts are always tested when brand new. By the time they have seen a season's hard service they have gradually weakened through repeated overstrain, until their factor of safety has been eliminated and they are ready to succumb, sometimes to what amounts to less than a normal load. Better material or changed dimensions in every such case mark but another step toward the attainment of the state of perfection that means as close an approach to absolute reliability as is obtainable. And such a system of keeping in touch with the actual user of the car is not alone a simple and readily followed plan, but also accomplishes another purpose. It shows the owner that the maker of the car has not lost all interest in it, as soon as it left his hands, and often marks the entering wedge that means another sale of the same make whenever the old car must give way to one more up to date.

As to the Commercial Vehicle.

Mechanical traction, the life-blood of the world's existence, has made possible during the last half century, many things which otherwise could not have taken shape. And during its earlier development, while the railroad and the aquatic transport were bridging great distances and drawing into closer communion the centres of activity with the steam-fed magic of the age, gigantic business undertakings were being formulated and put into action. Cities were drawn together, the producer, the manufacturer and the consumer were placed in immediate relationship with one another,

and the interchange of all things which make, not simply for the life of the community, but for its commercial prosperity as well, was secured.

Without the marvelous efficiency of the railroad and the steamboat, this could not have been possible. The factory would still be adjacent to the market, the producer next door to the distributor, and articles of foreign manufacture together with food stuffs from the open country could never have been sold at low percentage profits in every city. One thing, however, has been amiss. The common carriers have transported their loadings only to and from certain centres, depots, wharves, and warehouses, and from these points a secondary haulage has been necessary in order to complete the interchange of commodities, which has been carried on by the little improved methods of our forebears, the horse drawn wagon, and the push cart.

For many years, the idea of applying mechanical traction to vehicles which were adapted to traffic upon the common highroads, was looked upon with complacency by a few farseeing individuals, considered as a desirable possibility by others, and by still others, looked upon with downright scorn. But the automobile, growing from a ludicrous beginning, and suffering many vicissitudes during its maturation, is fast knitting up the gap which has existed between the door of the consumer and the warehouse and depot. It is completing the chain of transportation and broadening the circulation which hitherto has linked country and town, and town and town, until it reaches out to embrace not simply the town, but the individual. And the advantages which apply to the railroad, apply equally as well to the motor vehicle in its capacity of serving the uses of mankind.

Just at present, a somewhat equivocal situation exists with regard to the motor business vehicle, for its adherents, suddenly grasping its possibilities, and appreciating what has been achieved in the way of design and construction in the field of pleasure vehicle, have jumped to the conclusion that the commercial vehicle is equally as well advanced in point of structure, and that it remains but to stimulate interest in its possibilities, when a great use for it will at once spring up, and a gigantic demand for vehicles. The prospective users, on the other hand, are still holding back to a great extent, profiting by the lessons learned by the earlier adventurers, and skeptically regarding every pro-

posal which comes to their consideration. The number of experimenters, however, is constantly increasing, hundreds of business vehicles are now in use, and successful use. From these, their owners are learning lessons of maintenance and service which will be valuable to them and to others as well. But the growth is slow, comparatively speaking, and the symptoms which augured so much for the pleasure vehicle a few years ago, indicate far less in the case of business conservatism.

Even with slow rate of growth, however, and with a certain number of attempts going down into history as failures, the constantly increasing use of the commercial vehicle, is far from insignificant. For many of the machines which are now being operated on a basis which is admittedly unsatisfactory, are eclipsing the service possible with the use of animal traction, and of the others, many are running under constantly improving conditions which measure the degree of experience of the users.

As to the possible spread of the use of this type of motor vehicle, its extent is seen when the fact is taken into account that full 90 per cent. of all goods transported by rail, are rehandled by other vehicles subsequently. At present there is a minimum limit to the practical applicability of the motor vehicle, but with the growth of the industry, this will be lowered gradually until its practical capacity is measured only by the ability of the user to justly proportion his transportation facilities with his need of them.

Argentine Show Merits Attention.

Buenos Ayres, the Paris of South America, is to have an automobile show. Time not being of the essence of the matter, it will not be held until September next. Here is a free field with no favor and plenty of time to get ready for the campaign and as conditions in the Argentine, and particularly the nature of the roads, more closely approach the American type than any other, cars built for American roads are without doubt the best suited for that country. It is one vast plain, and a goodly proportion of its population is not alone wealthy, but daily becoming wealthier. The foreign manufacturers were quicker to grasp the situation and their cars are far more numerous intrenched. But the show in September next should prove in the nature of an opportunity for the American makers to reclaim the trade that is almost their own.

UP SMITH MILLS HILL

Parker's Car Makes Fastest Ascent—
Horses Interfere with the Sport.

David L. Parker's Pope-Toledo and Pope-Hartford cars captured the lion's share of the honors in the hill climbing contest held at New Bedford, Mass., on Patriots' Day, 19th inst., winning two of the regular events and making the fastest time in a special match race against a Franklin car from the Lowe garage. The contest was held on the Smith Mills hill, and the distance marked off was 3,300 feet, approximately five-eighths of a mile. The incline averaged a grade of $6\frac{1}{2}$ per cent., and Parker's Pope-Hartford with J. P. Grady at the wheel, made the ascent in the fast time of 51 seconds.

Nearly 3,000 spectators lined the course when the first event was called. Some difficulty was experienced in obtaining a clear road as several teamsters persisted in keeping the middle of the road. After the first car had started on its way a pair of horses got in the way, and it was necessary to begin all over again. This sort of thing was repeated several times and undoubtedly many of the cars would have made better time had they not been forced to turn out for horse drawn vehicles.

Dr. W. H. Thayer, in an 8 horsepower Reo, won the first event, for runabouts costing less than \$1,000, his time being 1 minute 39 seconds. Charles A. Bowen, in an Oldsmobile, finished second. In the free-for-all runabouts a Napier, driven by H. E. Walmsely, reached the finish line in five seconds less time than it took a Franklin to cover the ground. The time of the former was 1:05. John H. Lawrence, at the wheel of a 20 horsepower Olds, won the event for cars not exceeding twenty horsepower and costing less than \$2,000, with hands down, beating out the second car by nearly seven seconds. Three Franklin cars scored second, third and fourth, and Gilbert Thompson, in a 16 horsepower Reo, was fifth.

Dudley H. Marks, in a Franklin, made the best time in the event for cars of less than twenty horsepower, making the ascent in one minute flat. Frederick H. Taber, Locomobile, finished second, twenty seconds later. A Reo and a Locomobile, driven respectively by Thomas and Marks, tied for third place. Their times were 1:20½ each. J. P. Grady, in Mr. Parker's Pope-Hartford, was clocked at 58 seconds in the next event, for cars costing not more than \$2,500, winning that event; an Olds, driven by Marks, beat out Brownell (Winton) for second place.

The fastest time in the regular events was made by A. K. Keller, who drove Parker's 40 horsepower Pope-Toledo in the free-for-all. He was clocked at 52½ seconds, just five better than that made by Marks, who finished second. James Allen,

30 horsepower Peerless, was third in 0:59½, and J. Tinglof, driving a 40 horsepower National, crossed the tape next. In all these events the cars were in full touring equipment and carried passengers, but in the special match race between the 25 horsepower Pope-Hartford and the 20 horsepower Franklin, the cars stripped from the "waist up." J. P. Grady drove Parker's Pope-Hartford and Marks steered Lowe's Franklin. The Pope car was victorious and made the best time of the afternoon, climbing the ascent in 51 seconds. Marks required two seconds more to reach the top. The summary follows:

For Runabouts Costing Less than \$1,000.

1. Dr. W. H. Thayer, 8 h. p. Reo.....1:39
2. Chas. A. Bowen, 7 h. p. Olds.....1:50
3. Oliver LaBelle, 3½ h. p. Pierce....2:09
4. Jean B. Jean, 6 h. p. DeDion.....2:58

Open to all Runabouts.

1. H. E. Walmsely, 18-20 h. p. Napier.1:05
2. H. W. Hervey, 12 h. p. Franklin..1:10
3. J. B. Rhodes, 20 h. p. Locomobile..1:13
4. Joseph Perry, 12 h. p. Franklin....1:21½
5. J. C. Shaw, Jr., 12 h. p. Autocar..1:23½
6. Dr. C. W. Hunt, 12 h. p. Duryea..1:35
7. J. B. Rhodes, 12 h. p. Franklin....—

For Cars not Exceeding 20 Horsepower and
Costing Less than \$2,000.

1. John Lawrence, 20 h. p. Olds....1:14½
2. Fredk. Lorraine, 12 h. p. Franklin..1:21¼
3. C. P. Brooks, 12 h. p. Franklin....1:23½
4. W. W. Wentworth, 12 h. p. Franklin 1:35
5. Gilbert T. Thompson, 16 h. p. Reo..1:45

Open to all Cars not Exceeding 20 Horsepower.

1. Dudley H. Marks, 20 h. p. Franklin.1:00
2. F. H. Taber, 20 h. p. Locomobile..1:20
3. G. T. Thompson, 16 h. p. Reo....1:20½
4. D. H. Marks, 20 h. p. Locomobile..1:20½
5. H. E. Walmsely, Jr., 20 h. p. Winton 1:29½
6. G. G. Williams, 20 h. p. Maxwell..1:42½

For Cars Costing not More than \$2,500.

1. J. P. Grady, 25 h. p. Pope-Hartford 0:58
2. Dudley Marks, 28 h. p. Olds.....1:08
3. C. E. Brownell, 35 h. p. Winton...1:12

Free-for-all.

1. A. K. Keller, 40 h. p. Pope-Toledo.0:52½
2. Dudley Marks, 20 h. p. Franklin..0:57½
3. J. W. Allen, 30 h. p. Peerless....0:59½
4. J. Tinglof, 40 h. p. National.....1:05½
5. Murray O'Neill, 35 h. p. Winton..1:10½

Special Match Race.

1. J. P. Grady, 25 h. p. Pope-Hartford 0:51
2. Dudley Marks, 20 h. p. Franklin..0:53

The Status of Hemery.

There has been not a little speculation as to what action the American Automobile Association would take over the fact that Hemery, the surly driver of the Darracq cars who was suspended for incivility at the late Florida meet, had been nominated by the Darracq firm to drive its cars abroad this season, especially in view of the fact that there are equivocal relations existing between the American and the for-

eign bodies that control automobile racing. But it seems that some of the mysteries that surrounded the ill-fated Florida carnival may not be cleared up satisfactorily until a twelve-month has passed.

Although at the time of Hemery's offense it was published that he had been suspended for a year and notice of his suspension cabled to the Automobile Club of France, this was not to be the case. At this late day it has just been learned that Victor—or August Hemery, as he is known here, was suspended for the Florida meet only, and that no official notification had been sent to the French body. Therefore, it would appear, the so-called punishment amounted practically to nothing. It will be remembered that last year Hemery was suspended for one year by the Italian Automobile Club, for telling the officials of the Florio cup race to "go to hell three times," as the peppery Frenchman expressed it. Later he was reinstated, after a profuse apology, in time to compete in the Vanderbilt cup race. Whether or not he apologized to the Florida officials, is not stated.

New York Must Buy American Cars.

After dabbling for a number of years in cars of foreign construction and second-hand condition, the City of New York will now devote its entire patronage to machines of American manufacture. A decree to that effect went forth from the Board of Aldermen on Tuesday last. Moreover, the departments which invest in machines hereafter, must content themselves with such as can be purchased at a sum lower than \$4,000 each. Another stroke of Aldermanic legislation made at the same time, will compel the commissioners to have the initials of their departments indelibly marked upon the cars, so that the identification can be readily made at any time. Incidentally, Dock Commissioner Bensel was given permission to purchase two new cars, one at \$2,500 and the other at \$4,000, without public letting—which is a most striking mark of grace on their part.

The Ways of the Thief.

Stealing automobiles has come to be a fine art, and the assumption that it is safe to leave a car standing unattended because there is not one man in a hundred, thief or otherwise, who could run it, no longer holds good. And this for the simple reason that the man who now steals a car is an ex-driver who knows the ropes more thoroughly than his master, particularly where it is the latter's car that he has designs against. Nothing illustrates this better than the capture of a driver who was rounded up in the very act of getting away with the car of his former employer and every accessory that he could lay his hands on. He had taken adequate precautions against discovery by manufacturing a number of identification plates out of pieces of blackboard with numbers of white paper pasted on so that they could be changed.

Raising Funds for San Francisco.

While the motor car has been doing yeoman service in the all-important relief work in San Francisco, it has by no means been idle in the carrying on of the same cause in other parts of the country. Indeed, it has figured in many of the incidents which have gone to make up the attendant "local coloring," which has formed a whirlpool in the great tide of popular feeling which has surged across the country. One of the most striking of the purely local incidents in this connection occurred on the Satur-

There was Money in this Car.

The manager of the Oldsmobile Company of Baltimore, Md., had a peculiar experience recently, which, he declares, emphasizes the value of the Olds "as a machine to put your money in." Last October he made a trip in his Olds touring car from his country place, midway between Long Branch and Red Bank, N. J., to the latter place. Among other things, he intended to deposit a check for \$250 and \$50 in cash with his bank in the town of Red Bank. After attending, as he supposed, to his



day following the disaster, when Willie Hoppe, the young billiard expert, peddled evening papers about the ball grounds from the tonneau of a White steamer.

Hoppe, who had received permission from the New York baseball club to sell evening papers on the grounds before the game, secured a White car for the purpose and half an hour before the game began, together with his assistants, was admitted to the field and steamed across the diamond. Manager McGraw at once jumped into the car and offered at auction the ball with which he had been practicing. A prominent Wall street man bid \$150, and after a lively scramble a representative from the White garage secured it with a bid of \$200, the sum having been subscribed by the employees. The entire team then entered the car and were driven around the field. A strong-lunged man with a megaphone meanwhile shouted the mission of the party to all of the twenty thousand people who had gathered for the game. After this auspicious entree, Hoppe and his assistants walked through the stand dealing out the papers at fancy prices with the result that the San Francisco Fund was materially enriched.

various errands, he returned home. The next day bad weather set in, and he placed his car in a New York garage. Soon after he left home for some time on business. He opened an agency in Baltimore some time ago and last week wired the New York garage to send on his touring car, which was done. One morning last week one of Mr. Purroy's employees found underneath of the seat, among some rubber blankets, his Red Bank deposit book, still holding the check for \$250 and \$50 in cash.

To have a Country Clubhouse.

The Indiana Motor Club has been organized at Indianapolis and within the next few days the new clubhouse to be built by the club at Broad Ripple, on White River, five miles north of the city, will be under way. The club has secured 400 feet from on the river and on this strip one of the most modern and most complete clubhouses will be erected this spring. The club house will cost in the neighborhood of \$5,000. The following officers of the club have been elected: President, Frank J. Barr; vice-president, Guilford A. Dietch; secretary, Frank B. Willis; treasurer, Bert N. Pierce.

Oldfield Plays Tag at San Antonio.

At San Antonio, Texas, on a three-quarter of a mile track at the fair grounds oval on Sunday afternoon, 15th inst., Barney Oldfield covered the mile in 1:07 $\frac{1}{2}$. He also won what was to have been a five mile race between Oldfield and Paul Albert, the "German champion," but which was cut down to four and one-half miles.

Oldfield drove his "Green Dragon" and "Herr" Albert sat at the wheel of a stripped car. Oldfield covered the distance in 5:33. Albert finished in 6:50.

Locally the greatest interest of the brief meet centered in the three mile match race between Oldfield and Dr. F. J. Fielding, both using touring cars. According to a local paper the champion has found a rival to his claim for championship honors.

"By reason of Oldfield having the superior power over Dr. Fielding the latter was handicapped, though that seemed unnecessary, Dr. Fielding's car and his splendid driving being superior to Oldfield's," relates the scribe. "In the finish, Dr. Fielding ended a quarter of a mile ahead, a greater distance than his handicap."

The race was from a standing start and San Antonio's prodigy's time was 5:02. Whether or not Oldfield indulged in a quiet little nap on the back stretch while the race was in progress is not stated.

Smith to be New Jersey's Czar.

B. R. Smith, the assistant secretary of state of New Jersey, who, by virtue of his official position, is the new Commissioner of Motor Vehicles, already is "on the job." He is sending out notices to all automobilists in the State that the provisions of the New Jersey law must be complied with and that right early. The commissioner is the person who has the czar-like power to take away a driver's license to run a car "for good and sufficient cause." Edward Johnston, of Jersey City, has been appointed Deputy Commissioner, but the seven inspectors, who are given the right to arrest without warrants, will not be named until about the time the penalties of the law go into effect, July 1.

Winnipeg Reorganizes its Club.

The Winnipeg (Manitoba) Automobile Club has reorganized for the season with the following officers: Patron, Sir Daniel McMillan; honorary president, John Galt; president, J. C. Armitage; first vice-president, F. H. Pippen; second vice-president, R. MacLeod; secretary-treasurer, A. Emmett; executive committee, Messrs. Maw, Newman, J. C. McCulloch, W. C. Power, H. Alwyn, D. H. Bain and Dr. Baird; touring and racing committee, D. H. Bain, W. O. Power, J. H. McCulloch, H. Aylwyn and R. MacLeod.

"The A B C of Electricity" will aid you in understanding many things about motors that may now seem hard of understanding. Price, 50c. The Motor World Publishing Co., 154 Nassau Street, New York City.***

FOR THE A. C. A. GOLD CUP

Rules that will Govern Efficiency Test on
May 5—Route also Selected.

After a period of careful deliberation, the Two-Gallon Efficiency Contest Committee of the Automobile Club of America has announced the rules governing the forthcoming consumption test, together with the course and the date—may 5. The regulations throw open the test to all cars of the pleasure type, owned either by individuals or manufacturers, and the score formula provides for all types of engines.

imately a ton-mile basis, the object of the committee has been to bring out some of the points in the performance of the average car which are but little understood at the present time. To compare the relative efficiencies of different types of vehicle on a common basis, is by no means an easy task, especially since the field of recorded data is absolutely barren of all material which might serve as a just basis of handicapping. So that this contest is intended in a measure to serve as a trial, and a basis for subsequent investigations of a similar nature. Complete data of the constructive features of all competing cars will be preserved.

to examine the cars at this time, and in any case where it appears to the committee that any attempt has been made to avoid compliance with these regulations, the car will be ruled out of the competition. A sufficient number of cars, each containing exactly two gallons of gasoline, carefully measured, and sealed, will be at hand and will be distributed to the cars.

Cars will be required to conform to all official regulations of the City, State or Federal authorities, and will be required to possess all equipment required by such authorities, such as brake, lights and horn.

The rating will be based on cars having four or more cylinders. Cars having two



GOLD CUP AND OTHER PRIZES FOR A. C. A., TWO GALLON CONTEST.

The only restrictions placed upon the machines is that they must be taken from stock, which, of course, excludes all of special or freak design, and that they are to run with the regular touring equipment; the only permissible alterations being such adjustments as are ordinarily made while on the road, and any necessary change in the size, inclination, or elevation of the gasoline tank which may be necessary in order to insure complete delivery of the entire two gallons to the motor. The course will lie between the club house on Fifth avenue and the Boston Post road, covering the well known route, by way of Jerome avenue, Pelham Parkway, and New Rochelle, and the finish of the cars will be carefully noted both by the individual observers which accompany them, and by the pilot and following-up cars, which will carry cyclometers.

In arranging the test on what is approx-

The entrance fee will be \$10 per car, and the lists will be closed on May 2, at noon.

The contest will start from some garage near the club house. Beginning at 1 o'clock in the afternoon, after being weighed at their own convenience, the cars will start immediately for the club house, and go over the measured course, which will be straight up Fifth avenue to 110th street, to St. Nicholas avenue, to 155th street, to Central Bridge, to Jerome avenue, to Pelham Parkway, to the Shore Road, to New Rochelle and on to Boston Post road, per route card. No attention will be paid to the time made, but any car not starting within fifteen minutes after the committee gives the word to it and that does not finish within five hours, will be disqualified.

Each car, and especially the float chamber of its carburetter, must be emptied of all gasoline before starting. A sufficient number of independent experts will be on hand

cylinders will be rated as though their weight loaded were 75 per cent. of the actual weight, while single cylinder cars will be treated as though they weighed 70 per cent. of their actual weight. The weights will be determined before the contest begins, and will include that of the operator and observer, who will be furnished by the committee, and no dead load other than the regular equipment will be allowed. All passengers and equipment taken in the original weight of the car must remain there during the entire run. The score formula will be as follows:

To the actual weight of the car including passengers and equipment, qualified according to the number of cylinders, as above shown, a handicap of 800 pounds will be added. This sum will be multiplied by the distance traveled in miles, to obtain the final score. The cars making the highest, and second and third highest scores, will be

awarded the first, second and third prizes, respectively.

As soon as a car comes to rest from the consumption of its entire allotment of fuel, its observer will note the exact position which it occupies, by means of his map, measuring from the tires of the front wheels and will see that it remains stationary until the arrival of the official wagons, one of which will proceed, and another follow the contestants. These cars will also carry observers who will check off the position of the contestant, and will supply it with sufficient fuel for the return journey. The results of the contest will be telephoned to the committee which will be in continuous session during its duration, and will announce the results and award the prizes as soon as the positions of the leading cars have been officially determined. As soon as the results have been declared, the winning cars will be sent to a garage under the care of an official, and will there be subjected to a further examination. The committee has reserved the right to open and examine the gasoline tanks, if thought necessary.

The awards consist of a \$500 punch bowl for first, a \$100 cup for second, and a medal for third. In addition to these, upon request, certificates of performance will be given for each car that enters, goes over the course and complies with all the requirements.

A clause in the rules provides for the immediate consideration of protests by the committee, in case they are made in a regular manner and accompanied by a fee of \$25. Protests will be decided upon at once, and if not allowed, the fee will be retained by the committee.

"David Harum" in New Jersey.

That old saying about "All's fair in love and war," which has been stretched to include politics, may be stretched again so as to include horse and automobile trades. There is a good story going the rounds of a certain New Jersey automobilist, whose name is omitted on account of his connection with the church, but who rightly may be termed the automobile "David Harum."

Recently he heard another owner say that he was tired of his machine and would trade it for a good horse and buggy. The matter was apparently forgotten, but the party of the first part remembered the conversation a few days later when in conversation with another friend about automobiles it was remarked by this other friend that he would buy a machine just as soon as he could sell his horse and buggy. The minister struck a trade right there, and later his automobile was given to the owner of the horse and buggy and the horse and buggy—and a phaeton, to boot—was in the property of the minister who wanted the automobile of the first gentleman. The second trade was made and now the minister is a phaeton ahead and has the machine which he desired to trade his horse and buggy for in the first place.

HONORS WELL DISTRIBUTED

Stock Cars Show to Advantage at Atlantic City—Lady Racer in Evidence.

The Atlantic City Automobile Association opened the season's racing yesterday on the beach at Ventnor, two miles south of Atlantic City, N. J., with the first day's installment of a three days' meet. Favorable weather conditions served to attract thousands to the course and while it is impossible to accurately ascertain the number of the crowds that lined both sides of the course and filled the big grandstand, it is estimated that 10,000 people saw the races. The beach was in fair condition, soft in one or two spots, but on the whole good time was made and the result of the first day's racing augurs well for the remaining two. One thing that caused the spectators—that is, those who have attended other Atlantic City carnivals—to rejoice, was the fact that the meet was well conducted. There was not the delay that has marred preceding meets, and although the first event was not started until 2:40 p. m., it lacked a few minutes of five o'clock when the last was finished.

One of the most notable performances of the day's racing was that of a stock Thomas which ran a mile in the fast time of 56½ seconds, although this was not the fastest time made. In the time trials a twenty horsepower Stanley, driven by H. Ernest Rogers, covered the measured course in 42¾ seconds, while Hilliard, driving an English car in the four-cylinder championship made the mile in 46¾ seconds. In fact, the stock cars "put it all over" the specially built racing cars, which is in itself a triumph. In the standing start for the gasoline car championship, Walter Christie, who has, during the winter months, reconstructed his freak front drive racing car, traversed the mile stretch of sand in 53 seconds, winning the event and setting up a new record for the distance from this kind of a start.

All the events were at one mile. What some people would style a feature of the meet was the appearance of the lady driver who similarly cavorted on the beach and elsewhere last year. Fortunately or unfortunately, according to individual opinion, luck was against her and even the timing apparatus failed to register her performance in the trials.

Honors were well distributed in the other events. Two Stoddard-Daytons ran first and second in the thirty horsepower or less class, and an Acme finished third. Two Pope-Toledos, driven respectively by Chas. Soules and S. H. Elliott, crossed the tape first and third, in the event for stock cars, regularly equipped, selling for \$4,000 or less. M. Roberts, 50 horsepower Thomas, was second. Roberts won the event for stripped

stock cars. In a price handicap, in which the cars costing \$4,000 were placed on scratch, the others given handicaps of one second for every \$100 less in price, two Stoddard-Dayton cars, with 17 seconds' handicap each, crossed the tape one and two, while a 36 horsepower Acme (12 seconds) finished third. The summaries:

Championship for four-cylinder cars—Won by W. H. Hilliard, 80 horsepower Napier; A. S. Robinson, 50 horsepower Thomas, second. Time, 0:46¾.

For American touring cars of not more than 30 horsepower, for Lyon cup—First heat won by Peter A. Fogarty, 30 horsepower Acme; P. F. Rockett, 30 horsepower Stoddard-Dayton, second; C. M. Hamilton, 30 horsepower S. and M. Simplex, third. Time, 1:18¾. Second heat won by F. S. Walton, 30 horsepower Stoddard-Dayton; C. B. Bacharach, 24 horsepower Packard, second; W. W. Hepburn, 18 horsepower White, third. Time, not taken. Final heat won by P. F. Rockett, 30 horsepower Stoddard-Dayton; F. S. Walton, 30 horsepower Stoddard-Dayton, second; Peter A. Fogarty, 30 horsepower Acme, third. Time, 1:17¾.

Standing start gasoline car championship (free-for-all)—Won by Walter Christie, 110 horsepower Christie; W. H. Hilliard, 80 horsepower Napier, second; Montague Roberts, 60 horsepower Thomas, third. Time, 0:53.

For regularly equipped touring cars selling at \$4,000 or less, carrying five passengers—Won by Charles Soules, 35 horsepower Pope-Toledo; Montague Roberts, 50 horsepower Thomas, second; Stewart H. Elliott, 35 horsepower Pope-Toledo, third. Time, 1:13¾.

For stripped touring cars of not more than 50 horsepower—Won by Montague Roberts, 50 horsepower Thomas; E. B. Jackson, 45 horsepower Chadwick, second; H. E. Woodman, 32 horsepower Pope-Toledo, third. Time, 1:02.

Price handicap, for four-cylinder cars; regular equipment, carrying five passengers; \$4,000 cars on scratch; handicap of one second for each \$100 less in price—First heat won by F. S. Walton, 30 horsepower Stoddard-Dayton (17 seconds); P. A. Fogarty, 30 horsepower Acme (12 seconds), second; Montague Roberts, 35 horsepower Thomas (5 seconds), third. Time, 1:27¾. Second heat won by P. F. Rockett, 30 horsepower Stoddard-Dayton (17 seconds); Charles Soules, 35 horsepower Pope-Toledo (5 seconds), second; C. B. Bacharach, 24 horsepower Packard (scratch), third. Time, 1:26. Final heat won by F. S. Walton, 30 horsepower Stoddard-Dayton (17 seconds); P. F. Rockett, 30 horsepower Stoddard-Dayton (17 seconds), second; D. Landau, 30 horsepower Acme (12 seconds), third. Time, 1:25.

Time trials—H. Ernest Rogers, 20 horsepower Stanley, 0:42¾; A. S. Robinson, 50 horsepower Thomas, 0:56¾; Mrs. Joan Newton Cuneo, 18 horsepower White, time not taken.

CO-OPERATION IN DESIGN

Factory Practice that Improves the Product and Prevents Stagnation.

One of the greatest advantages of the introduction of the more modern methods into the science of factory production, is that they are gradually tending to develop in the mechanic that individuality of which he was in a measure deprived by the early introduction of the automatic machine. When the use of jig tools, and self-regulating production machinery first came about, it was harshly contended by the workmen themselves, that the ultimate result would be to rob them of their vocation, reduce them to the plain of unskilled laborers, and altogether deprive them of their status as skilled artisans. But with the further development of these same machines and fixtures, it is seen that on the contrary, their whole tendency is to develop a greater degree of understanding of intricate mechanism, and to produce in the men who are familiar with them an understanding of mechanical matters and a realm of thought which would have been impossible under the old regime.

Naturally enough, the effect of this tendency, while acting directly on the men themselves, has reacted on the manufacturer in a manner which is wholly beneficial to him, for it has fitted his employees to perform his work in an intelligent and painstaking manner impossible without an entire comprehension of the needs of the work and its purpose. It has enabled him, in cases where he has had the perspicacity to undertake it, to utilize in his work the advantages of new thoughts and ideas bred directly from intimate contact with the business of production, and untainted by the crotchets which are the inevitable accompaniment of the purely technical constructor, and the unpracticed theorist. For the genii of theory and practice, albeit a jealous pair, must ever go hand in hand, and the closer their relationship, the better the ultimate result to their patron, the maker.

That being the case, since in the designer, is always to be encountered an individual of "set ideas," and, not infrequently, of narrow perspective as well, when it comes to a determination to have his own way regardless of the tenets of common practice and facility of manufacture, the wisdom of infusing into that complex master machine, the plant, some of the hard-headed practical ideas of the shop is at once apparent. Of course, in attempting this, it would be useless to sort out a particularly likely mechanic from the floor gang and send him into the draughting-room in an advisory capacity. That would simply spell failure of the most exasperating variety. But, on the other hand, to give each and every mechanic an opportunity to express his ideas fully and freely on matters pertaining to the work, would accomplish the same result

without any of the element of friction which otherwise would be engendered.

Appreciating this idea, many manufacturers have instituted a "suggestion box" in one form or another, and thrown it open to the entire factory force, requiring only that each hint be accompanied by the writer's name, as proof of good faith and for other obvious reasons. At stated intervals the boxes in which these suggestions have been deposited by the men are opened by some representative of the "office," who treats them with due respect, separating the chaff from the wheat, and making note of those which seem to be especially pertinent. The adoption of any ideas gleaned in this way, needless to say, confers upon their author a feeling of co-partnership which serves to strengthen the bond between him and his employer, and at the same time, its weight and significance carries with it no obligation on the part of the "office" to treat him with any special regard, although in some cases, the practice of awarding prizes for the best suggestions has resulted satisfactorily.

In the motor car industry, it is pleasing to note that several makers already have instituted this system, either in its complete form or in the simpler way of throwing open the office doors to the men at any time. In every case, the result has been noteworthy, and the maker has made haste to announce the fact without delay. In one instance, a maker has even gone to the extent of mentioning in his advertisements for new help that he makes it a practice to welcome all suggestions from the operatives upon any subject connected with the work in hand.

The principle of the thing is so apparent that it needs no exposition, and its development has been that in no case which has been recorded, has such a system, once adopted, subsequently been given up.

That being the case, it would seem that those who have not as yet embraced it, are losing a deal of valuable material which is literally going to waste. For even granted that the majority of the suggestions received are of little intrinsic value in the end, still the opportunity of getting in touch with the minds of the employees, with the barest chance that it may result in a saving of big round dollars, is one which is not to be neglected.

Motor Baby Carriages Next?

Once the idea of motor propulsion for vehicles not confined to rails had become popularized, it was naturally to be expected that it would soon be extended to cover any and every type of wheeled vehicle—no matter what its purpose, yet the idea of the motor-driven baby carriage, is something which certainly lays claim to a deal of novelty and unconventionality. Nevertheless, in the land of the 'orse and the 'ouse, where they call such vehicles by the very much abbreviated syllable "pram," a firm is said to be at the present time working

upon a type of self-propelled baby carriage which is to be driven by an electric motor at a conservative rate of speed, and controlled by a nursemaid for whom a "dicky" seat is provided at the rear. In order to distinguish this from the more archaic types and prevent confusion of terms, they will dub the new vehicle a "pramotor."

Shellac for Roadside Repairs.

Comparatively few operators recognized the great value of shellac in its application to roadside repairs. But when it is considered that it is simply and easily applied, dries almost instantly, is water-proof, oil-proof, and a non-conductor of electricity, its utility is at once apparent. For instance, when a leaky water connection is to be closed up in short order, simply to wind it tightly with adhesive tape and then run over it a light coating of shellac is often sufficient to check the flow for some little time. Similarly, all temporary repairs to the ignition system should be protected with a solution of the gum, and even in straits, it may be used to close a leak in a carburettor float after it has been thoroughly dried by a gentle heat.

Motor Street Cleaners to Compete.

A competition for motor-driven street-cleaning machines is scheduled as one of the events to be held in connection with the forthcoming International Exhibition at Milan, Italy. In order to compete, the vehicles must have a carrying capacity of not less than 35 cubic feet, be suited to all sorts of road surfaces, and have a speed capacity of a trifle over six miles per hour when climbing a grade of three per cent. The competition is open to manufacturers, and cash prizes amounting to \$800 and \$400 respectively will be awarded to the first and second winners.

When the Car is Idle.

When housing a car in a garage, the owner should never fail to leave the speed lever in the neutral position, as otherwise, the washers, in order to roll it to and from the wash rack will be obliged to shift the gears. In most cases these functionaries have little or no appreciation of the advantages of unclutching when moving the lever, and the result is not apt to be beneficial to the car when the precaution has been neglected. The necessity of leaving the gears neutral when the car is standing unattended in the street, needs no comment.

Mason Begins Building Factory.

Work was commenced last week on the automobile factory the new Mason Automobile Company is erecting at Des Moines, Iowa. The location is at East Fifth and Market streets and the new building will be 50x151 feet and two stories in height. It is expected to have it completed and in operation in about sixty days.

DON'T LOAN YOUR GOGGLES

Eye Troubles Apt to Arise—Disinfection Possible, but Supply of "Spares" is Better.

Lend your ear, your gold watch or your automobile to your friends, if you will, but do not be induced to lend your goggles to any one under any circumstances, says a foreign alarmist. It is a curious circumstance that medical men have not called attention to the necessity of making goggles of such materials as to render them easy to disinfect. It is not difficult to trace causes of more or less serious eye trouble to the practice of indiscriminately borrowing and lending goggles.

Among any party to be found in a car at the same time, there are always sure to be found some individuals whose eyes are more susceptible to the baneful influences of dust and wind than others, and by one of those freaks of contrariety that beset human nature at every turn, those who suffer most from this cause are least apt to be provided with the necessary protection. Nine cases out of ten the sufferer may be of the fair sex and every other member of the party immediately offers his goggles. Not to lay herself open to an implied accusation of favoritism she will usually try them all to see which pair is the most becoming. Whatever be the reason, and there are many, it is a common, every-day matter to lend or borrow goggles and ordinarily nothing is thought of it. That there is more reason for wishing the temporary use of such an article than prevails in the case of the tooth brush, or even a pair of ordinary glasses, must be apparent, though the alarmist who raises the cry is of the opinion that a pair of goggles is fully as much a piece of personal property as the article with which the matutinal cleaning of the dentition is performed.

But that there is something more than an idle alarm in the warning not to lend or borrow such a thing as a pair of goggles must also be plain, and it is not necessary to cite instances to make clear the risks involved, although those brought to bear on the subject illustrate how readily these eye protectors may prove quite the reverse by conveying to the wearer something far more harmful than a little dust or the inconvenience caused by the wind. In one case a motorist who was suffering from conjunctivitis—a highly contagious and inflammatory affection of the eyes, frequently used his car and consequently his goggles while in that condition. As a result they became saturated with the contagion and from wearing them after being completely cured, he reinfected himself and was compelled to undergo the whole weary and painful course of being cured the second time.

As a matter of fact the materials of which goggles are made do not lend themselves

readily to disinfection, and what is considerably more to the point, man's innate habit of disregarding what appear to be petty precautions would not cause such a process to be resorted to in one case in a hundred. The silk and other porous substances entering into their manufacture undoubtedly provide an excellent vehicle for the spread of contagion, but there is little doubt that if they were to be exposed to such a process of disinfection as would do any good—sulphur or chlorine fumes, for instance, it is quite likely that they would be so thoroughly disinfected as to become utterly worthless. The danger is probably much more remote than it appears to be to the alarmist, but if such should not be the case, it must be put down as one of the numerous evils for which the automobile is held responsible, such as the spread of the brown tail moth and a falling off in the receipts of the railroads. If there be any motorists who are so "finicky" as to adopt such a precaution as a general thing and under all circumstances, the remedy is obvious. Carry an emergency case containing half a dozen pairs or more of assorted goggles, just as spark plugs for replacement are always taken along. When they have been used more than once, make a present of them to the person who wore them or discard them just as a broken spark plug would be thrown away on the roadside.

Oiled Roads not for Heavy Traffic.

After considerable experimentation, the use of crude oil on country roads has been declared a partial failure by the highway authorities of Fresno, Cal., and accordingly, a committee appointed by the Chamber of Commerce has commenced an investigation looking toward the substitution of macadam for the oiled surfaces, including an estimate of the probable cost of the change. A \$300,000 bond issue is proposed to cover the necessary expense.

In some places where the oiling has been done, the results have been highly successful, but in other localities where the traffic has been composed of heavy vehicles, many farmers and property owners have complained of the conditions. As a result of this, several petitions have been circulated which seek to have the macadam construction adopted. Roads which are used for light vehicles only, are giving good satisfaction. This result of the Californian experiment, simply goes to bear out the admission of its advocates, that oiled surfaces are not suitable for heavy traffic.

Baltimore to Begin Racing on May 30.

Baltimore's Maryland Motor and Exhibition Company, which was incorporated recently for the purpose of holding weekly automobile race meets in the Monumental City, has decided to raise the curtain on May 30. A track has not yet been secured for the meet, but as negotiations for the famous Pimlico course have been under way, it is reasonable to suppose that the events will be run off there.

NO LONGER AN OILED ROAD

Vanderbilt Course as Dusty as Ever it was—Experiments with Dust-Layers.

Crude oil as a preventative of dust has been proved to be as effective for the purpose as anything that could be devised; however, it is not only very expensive to apply, but experience shows that it is far too evanescent. No better instance of this could be found than the Long Island circuit over which the Vanderbilt cup race was run not more than seven months ago. The course was not only thoroughly treated with a generous layer of crude oil only thirty days before the race, but a second though lighter application was made but a few days before the race actually occurred. Now the road is entirely innocent of any sign of oil.

In this connection, the report of a county surveyor on the other side, who has been carrying on a course of experiments in dust prevention for the past two years, are of interest. In his latest annual report he shows the cost of treating 800 square yards of surface with the much vaunted tar macadam to be \$600, while the expenditure for 12,200 square yards covered with a tar and oil composition applied to the surface only, was but \$510, so that the tar macadam cost fully eighteen times more. Moreover, it had not proved a success in any sense of the word, as there was no evidence forthcoming that the application of such a treatment would improve or prolong the amount of wear of which the road was capable in any way. Tarring the surface alone, on the other hand, showed a considerable saving in scavenging and road maintenance, and for the second year the saving effected by the process had more than offset the cost of the treatment.

The materials used included tar, lime, grit, pitch and oil, the first and principal coat of which was supplemented from time to time by an occasional light dressing of mineral oil alone. One of the most curious things included in the surveyor's report was the fact that the treatment was a decided benefit from a hygienic point of view also, as during the period covered by the experiments, there had been a marked diminution of infectious diseases in the town lying along the road treated, and as the time occupied was fully two years there was an almost unavoidable inference that the effective laying of the dust had been responsible for the improvement in the health of those living in the neighborhood. Another section of road was treated with a patent dust preventing composition, at a cost of from \$300 to \$350 per mile for the application alone, but it was found to have a very destructive effect on the surface of the road so treated, which would necessitate the laying of new material on all such roads at the approach of winter.

FOR BUSINESS PURPOSES.**Types of Cars Employed in New York and Varied Uses to Which They are Put.**

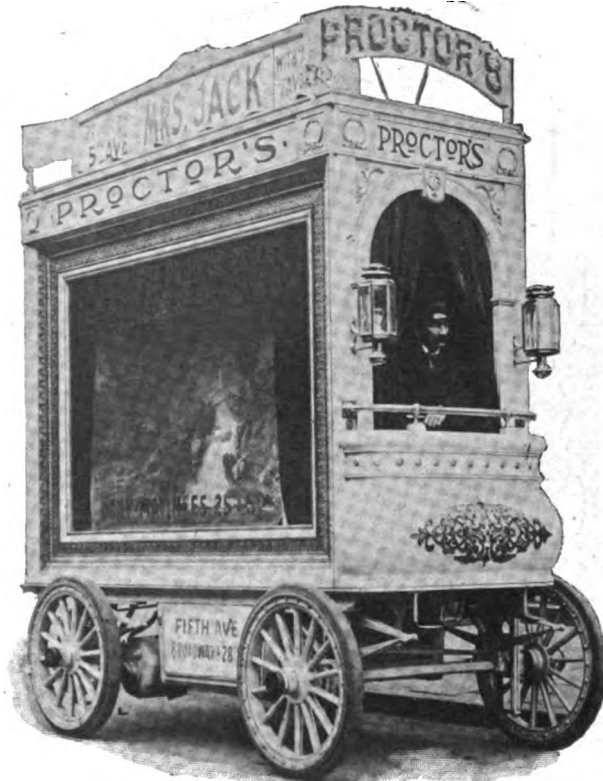
How much the cause of the commercial motor vehicle has been advanced within the confines of the Greater New York during the last twelvemonth, can be observed by anyone who cares to stand at the junction of any two well used thoroughfares for a matter of ten minutes. A year ago mechanically propelled vehicles were still being pointed out among the other "sights" of the city. Now, they pass without notice, and their constantly increasing numbers are not commented upon save by those who trade upon the success of the movement. And it is a significant fact, that although their prevalent use has deprived them of their early advantage from the advertising standpoint, pure and simple, they are still employed in constantly increasing numbers.

Nevertheless, although the mere use of a self-propelled vehicle by a business house has ceased to star its owner as progressive, its intrinsic value as a means of advertising is in no wise dimmed, for the flexibility of mechanical traction makes it amenable to any service whatever, and to none more profitably than to advertising.

A striking example of this is to be seen in the vehicle which the Proctor Amusement Company sends up and down Broadway daily advertising the current show at its Fifth avenue house. It is a notable vehicle, even in so congested a street as

Broadway below Thirty-fourth street, and never fails to attract a deal of attention. Its high narrow body done in white and

and illustrative of varied subjects. The driver's seat is enclosed within the vehicle and opens through curtains to the front

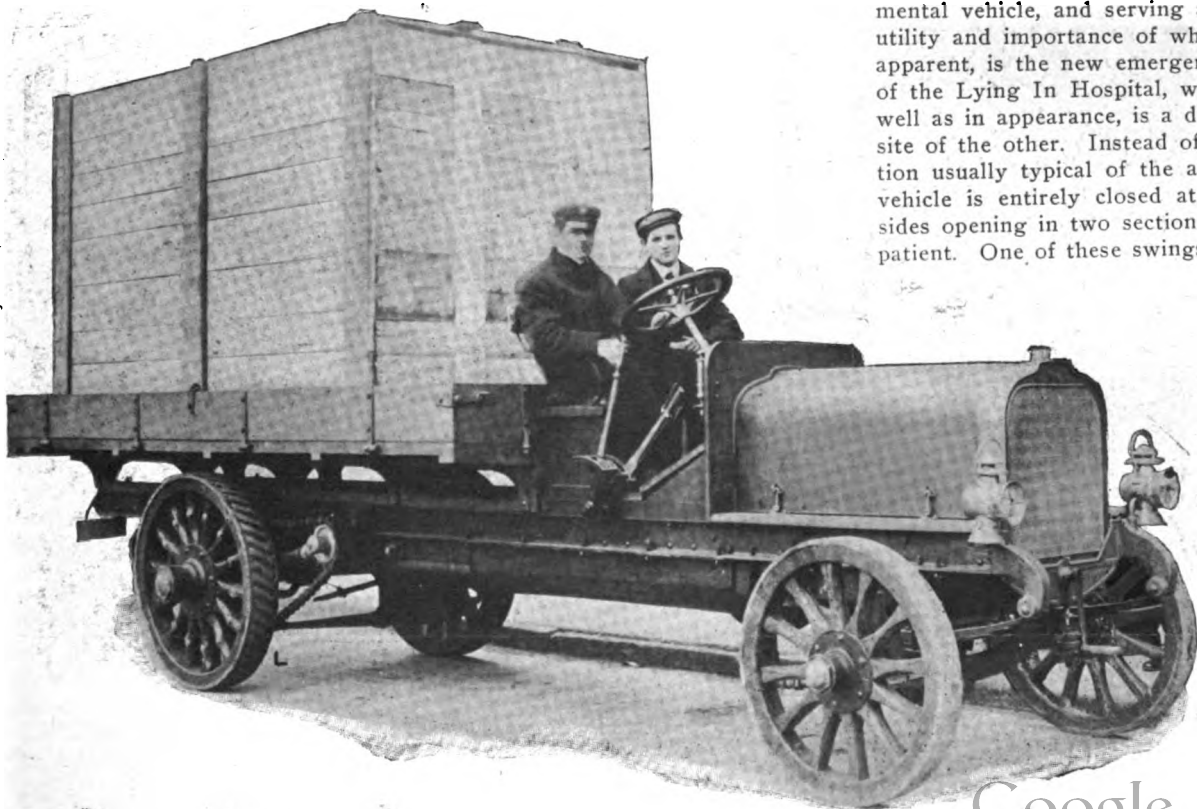


THEATRICAL ADVERTISING WAGON.

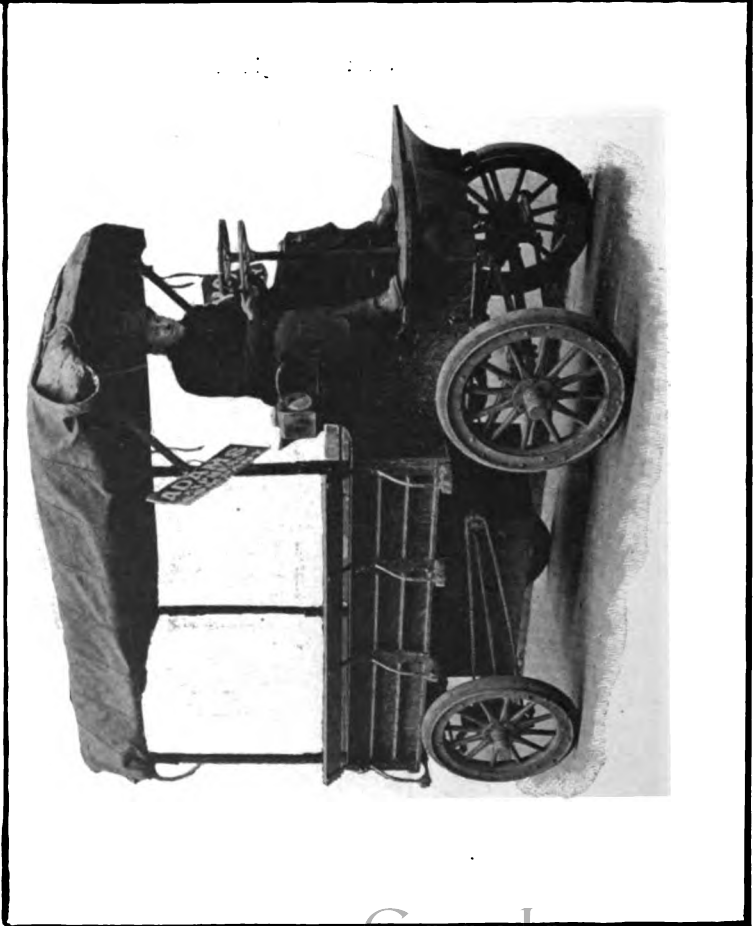
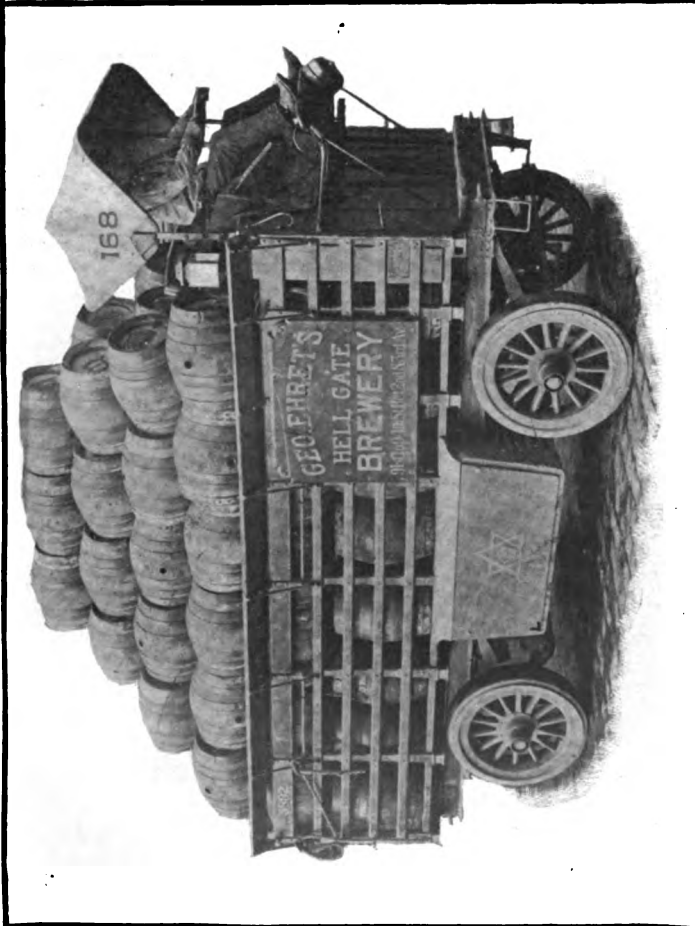
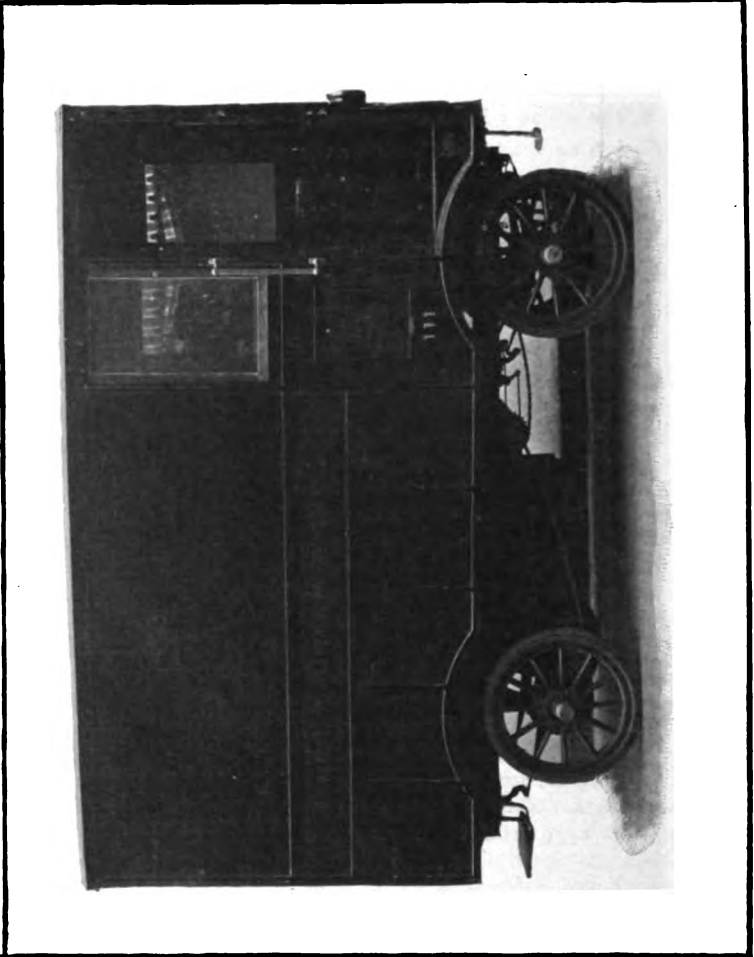
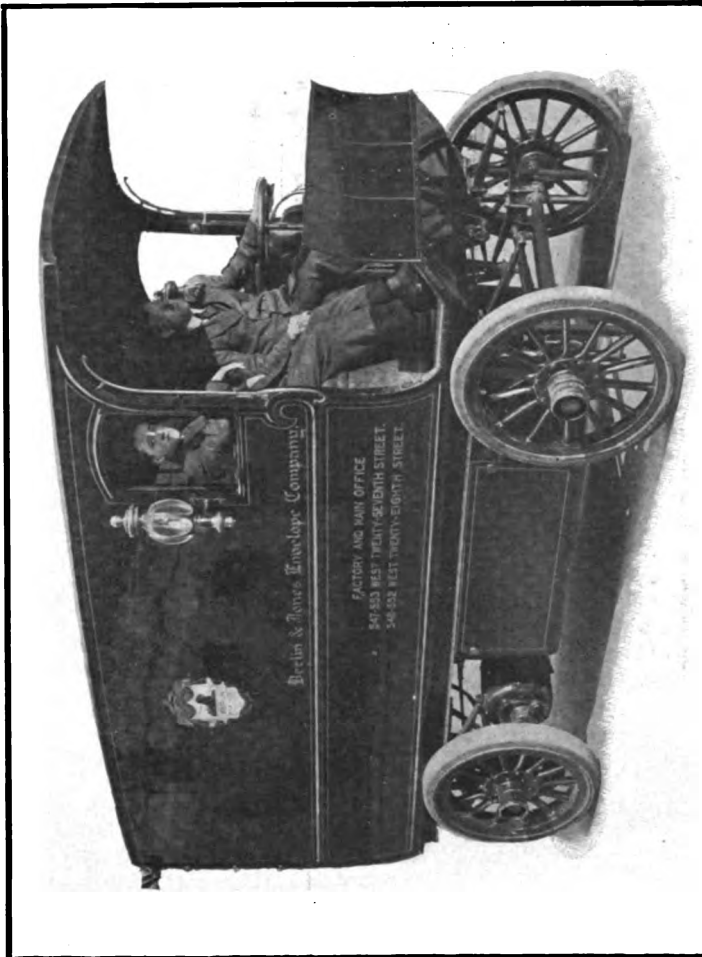
ornate with gilded ornamentations, carries set in either side a panel made up like a great picture frame, and mounting under glass, a series of panoramas done in colors

which is built to suggest the outside of a theater box. At night, a plentiful illumination sets off the decorations and gives a most pleasing effect to the whole.

Quite in contrast to this purely ornamental vehicle, and serving a purpose, the utility and importance of which is at once apparent, is the new emergency ambulance of the Lying In Hospital, which in use as well as in appearance, is a diametric opposite of the other. Instead of the construction usually typical of the ambulance, this vehicle is entirely closed at the rear, the sides opening in two sections to admit the patient. One of these swings up to a hori-



BERLIET GASOLINE TRUCK.



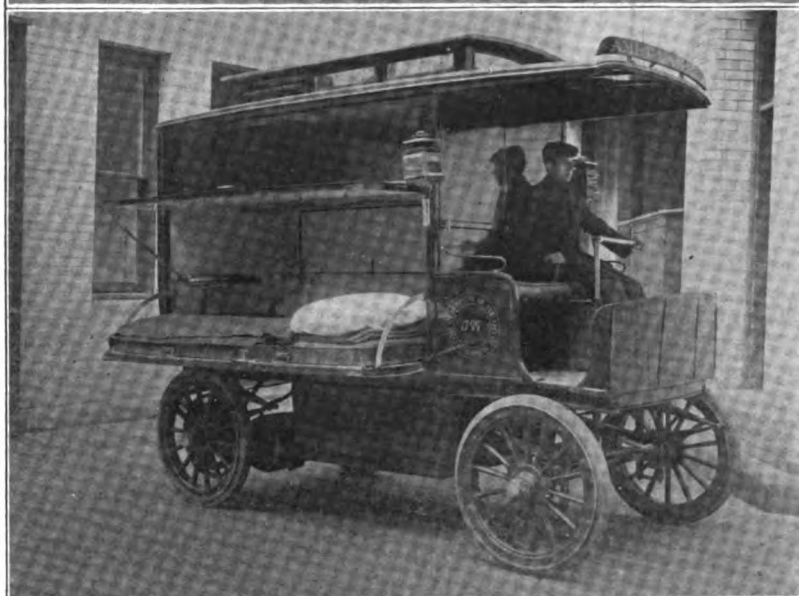
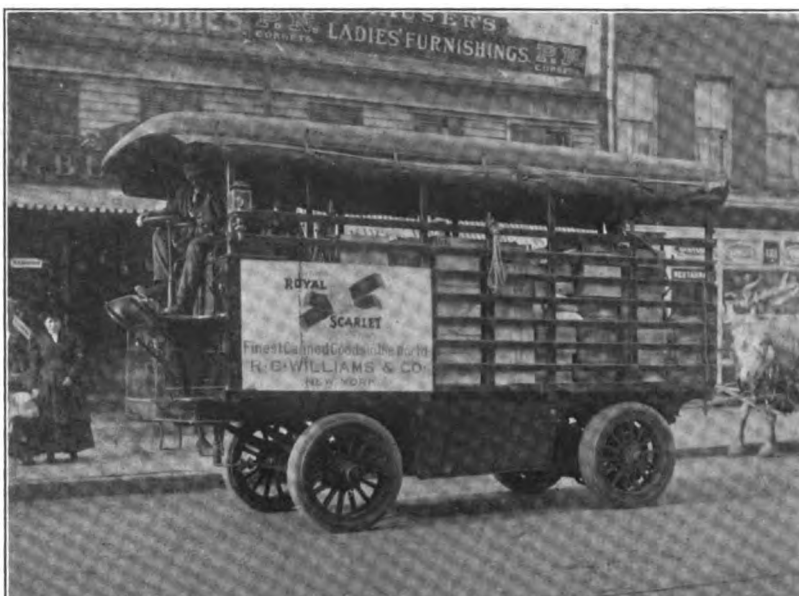
TYPES OF ELECTRIC COMMERCIAL VEHICLES IN USE IN NEW YORK.

zontal plane, forming a covering for the interior, while the other opens downward on a level with the floor thus permitting the cot to be slid out to a point clear of the side and over the wheels, while when closed, the panels are sealed air-tight, and show no sign of the method of opening. At the same time, the driver's seat, which is in two sections, may be lifted at the right side to admit access to a door for the admission of the attendant to the interior. This light and staunch machine is capable of making the best possible speed consistent with safety in traffic burdened streets, and is probably one of the most easy riding vehicles ever mounted on wheels.

Still another branch of utility to which the commercial vehicle is adapted, is illustrated by the accompanying picture of the heavy truck employed by the construction department of the New York Telephone Company. This takes the place of a portable stock-room and shop, carrying all the impedimenta of the crew, including their tools and materials, which are seen conveniently disposed under the heavy canopy, while the electric winch which is placed under the driver's seat serves a useful purpose in drawing the cables through the underground conduits, and also in lowering materials into the manholes where the work of connecting the myriads of wires is done. Numerous other vehicles which are adapted to special work of the same general nature are to be seen in use almost daily in the city, many of them doing the work of four horses at a time, and some of them performing duties which could not be accomplished were animal traction to be relied upon solely.

Practically the same type of vehicle as this is also used by the United Electric Light and Power Company, which also uses a number of heavy trucks of the covered platform type for heavy duty in transporting supplies about the city. In the vehicle here shown, the massive formation of every part, not unlike that of a freight car, barring the under bracing, which is here dispensed with on account of the rigidity of the angle iron sills, is worth noting. Incidentally, it may be said that this company has probably the most complete system of operation of any in the city aside from those which are common carriers exclusively. It has a large number of vehicles of various descriptions in use, and houses them in its own garages, all being under careful and competent supervision.

A somewhat similar vehicle is also shown loaded with canned goods, the property of R. C. Williams & Co., grocers. The load which is shown on this machine could only be handled with difficulty by a two-horse team, and its rate of speed with animal traction would be less than half of that which is easily possible on uncongested streets with the truck; while for starting, either in traffic or on grades, the machine does unaided and without difficulty, work which would be a hardship for a four-horse team.



ELECTRIC VEHICLES IN USE IN NEW YORK.



NEW YORK TELEPHONE UTILITY TRUCK.

The great stake trucks which are used by the brewing companies in making their deliveries, are by no means unfamiliar sights. Indeed, so common have they become, that it is difficult to realize what magnificent duty they are daily performing. The George Ehret truck, here shown, is loaded with no less than one hundred and six empty beer casks, making a load of over two and a half tons; and when it is considered that an equal number of full casks could be carried with equal facility, some idea of the efficiency of the vehicle can be gained.

But aside from the heavy duty machines, there are many in use which though not coming directly under that classification, are yet adapted to carry considerable burdens at better rates of speed. One of this type, which exhibits a most excellent style of finish, combining with its usefulness a striking beauty of line and surface, is that of the Berlin and Jones Envelope Company, in which are displayed all the taste and refinement which is outlaid in the best private carriages, yet in a simple and unostentatious manner which is most admirable.

Another type of delivery wagon, in which the wonderful adaptability of the motor vehicle is well illustrated, is that of the new Hearn machine, which is completely enclosed, the driver's seat being in a sort of cab at the front, enclosed by sliding doors, and the entire body being drawn without regard to the convention which seeks to give prominence to that portion of the

vehicle, as once was essential. The wheels are small, and of the same size, and the appearance of the machine is strongly suggestive of that of the vestibuled baggage car.

Among the express companies, there has long been a desire to utilize the motor vehicle, once it has assumed proportions which justified its employment in a service which would brook no delay, and indeed, the Adams Express interests were among the first to put it to a practical test. Hundreds of dollars were spent by them in trials of embryonic vehicles which failed to fulfill their expectations, and it has only been within a year or two that a really practical service has been obtained from them. Now, however, they have a large number of varied types in use, among them being the light electric here illustrated, which is one of the more recent acquisitions.

All of the vehicles referred to heretofore, have been electrically propelled. And, indeed, the greater majority of utility machines in city work at the present time, are of this broad type. For, notwithstanding their admitted lack of practical efficiency on account of their limited radius, they serve an all around purpose, and answer to a constant demand, in a way that remains to be eclipsed by either the gasoline or steam machines. Also, their simplicity of operation, and the fact that all the attention they require can be given them by a single expert or corp of experts main-

tained at the charging station, militates strongly in their favor since it removes from the operators the temptation to "tinker by the wayside," which sometimes is almost irresistible in the case of a more complex machine. In a word, the fact that a comprehension of the cycle of operation of one control lever, one brake pedal, and one steering wheel, is all that is required of the driver, is sufficient to place the electric vehicle on a pinnacle by itself wherever its greatest drawback is not of serious account.

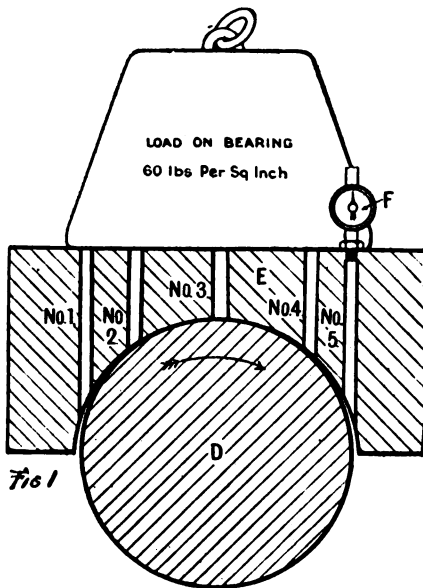
Nevertheless, the gasoline driven machine is beginning to make serious inroads on the market, and not a few machines of this sort are doing good and efficient service in the streets.

In this connection, it is well to point out one of the newcomers in this line, the American Locomotive Company's truck, familiarly known as the American Berliet, a ponderous, though by no means clumsy machine, which is doing its first season's work at this time. In it, will be noticed all the lines which have marked the development of the gasoline machine and which have been accepted by common practice and laid down as standard. Yet at the same time, it is distinctive in the careful detail with which every part has been worked out and bids fair to be a striking example of what is by many considered to be the type of greatest future popularity among the users of the commercial motor vehicle.

WHERE TO APPLY THE OIL

Experiments that Seem to Upset Present Practice and Open new Line of Thought.

Although a vast amount of data has been collected on the general subject of lubrication, and not a little attention has been devoted to it by designers of motor cars, there doubtless is a great deal yet to be learned of the subject in its broadest sense, and even more in its application to the mechanically propelled vehicle where certain disturbing conditions interfere with the effective working of some of the systems which are applied with good effect in stationary work. Thus, after all considerations relating to the effect of heat and the centrifugal and inertia effects

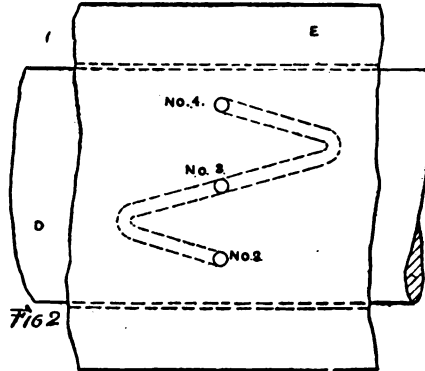


due to the rapidity of motion usually employed have been taken into account, there yet remains the fact that the commonest method of feeding oil to a bearing is by gravity or a comparatively slight pressure through the top. Yet it would appear that, aside from the apparently logical basis of this method, where the simple method of oiling is to be employed, the top, instead of being the best, is next to the bottom, the worst possible place to apply the feed.

Considering the theory of lubrication, it should be borne in mind that the function of the lubricant is to provide an unctuous film between the journal and its bearing which is of sufficient body to keep them apart by an almost infinitesimal space, and that its viscosity is relied upon to secure its even distribution over the entire bearing surface. Further, it becomes the duty of the lubricant to absorb the heat of friction, and either convert it into another form of energy by partially evaporating the lubricant itself, or else to carry it away in the overflow. This being the case, whatever pressure may be brought to bear upon the bearing as a whole, must exist in the lubricant, and, speaking rather broadly, there must there-

fore exist in the lubricant a fluid pressure corresponding to the pressure on the bearing, when the journal is rotating.

The common practice of relieving a split bearing at the sides, must, therefore, result in a greater pressure at the top and bottom than exists at any other points, and, also, it is evident that to a certain degree, the effect of the friction of the lubricant against the journal must serve to drag the former in the direction in which the shaft is turning, thus creating a locus of high pressure lying at the top of the bearing but slightly to one side.



That being the case, it would seem that any attempt to feed oil to the top would be to a certain extent resisted by the fluid pressure in the bearing, and that this resistance would have to be overcome before the feed could be accomplished. Of course, in the natural course of events, if the pressure were very great—great enough, in fact, to check the feed—it would seem that the natural generation of heat would result in the using up of a certain portion of the oil already in the bearing, and that as this took place, a drop in pressure would occur, which would permit the oil to flow again, but this may be rather an overdrawn conclusion.

In support of the theory, however, a series of experiments which recently have been carried out by a firm of British motor manufacturers, although only partially covering the subject, serves to throw some light on a point which has been but little dwelt upon up to the present time. The experiments referred to, of which but the most meager details are available, were conducted with a view to determining the best method of lubricating the crank pins of motors, and have resulted, says the Autocar, from which the illustrations are taken, in at least one firm altering its previous method of lubrication.

In Fig. 3 is shown the commonest method of oiling the crankpin bearing by simply allowing the oil which is thrown up by the crank to trickle down the web and flow into a counter-sunk hole in the top of the bearing. The method of test is illustrated by Fig. 1, in which is shown a bearing block E, which is loaded to give a pressure of sixty pounds per square inch on the bearing, having a series of holes drilled through it in the manner shown. To these holes

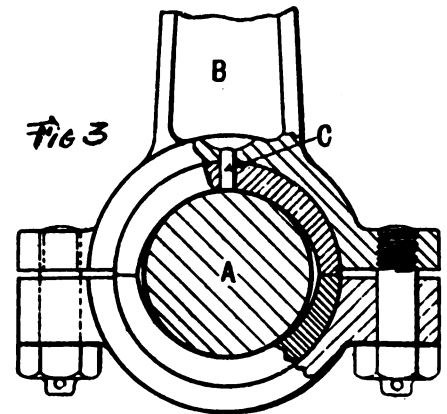
were attached pipes leading to a pressure gauge F, by means of which the pressure of the oil could be recorded, and the shaft D, was made to turn at the rate of 700 revolutions per minute, amounting to a linear speed of 550 feet per minute.

During a series of runs it was found that the pressures registered at the various holes were as follows:

No. 1	6.5	lbs.	per square inch.
No. 2	46.0	"	"
No. 3	95.0	"	"
No. 4	61.0	"	"
No. 5	-1.9	"	"

That is to say, the highest pressure was registered just at the place C where present practice tries to admit the oil. When the pressure gauge was removed from No. 3 the oil was thrown out with considerable force.

After a sufficient number of observations had been made, a distributing groove was cut into the bearing metal at shown in Fig. 2, and further results obtained, as follows:



No. 1	7.0	lbs.	per square inch.
No. 2	100.0	"	"
No. 3	107.0	"	"
No. 4	107.0	"	"
No. 5	-0.9	"	"

Apparently, the reason for a higher pressure being recorded after the grooves had been cut, was that the point of maximum pressure lay somewhere in between the third and fourth holes, and that by the effect of the groove, this pressure was somewhat equalized. The temperature of the oil bath during the tests was 100° F., the maximum result when the oil was cold being as high as 170 pounds per square inch, the load still being the same.

It would certainly appear to be a piece of rank heresy to suggest that the old method of oiling bearings through the top was not the best, and yet, many revolutionary points of apparently trivial import are constantly being brought out and adopted, which are of hardly more importance than this, and it is not unlikely that for bearings which are subjected to high pressures and run at great speeds, it will be found that the successful results derived from pressure systems, and ring oilers, are due quite as much to the fact that they are so constituted as to overcome the pressure of the oil in the bearing as to any other reason, and that for a sim-

ple gravity feed, some other point, possibly the front side, where the drag of the journal will carry the lubricant over the surface in a natural manner, will prove to be more advantageous than the highest point.

Tampering with the Carburetter.

"Make it a rule never to suspect or tamper with the carburetter, valves or compression until you are absolutely certain that the ignition is in working order," says a motoring M. D., whose car is on the go morning, noon and night and frequently after midnight, so that his advice should carry some weight. "In my experience, which extends over two years steady going, and years with me mean 365 days, not pleasant summer weather alone, I have found that fully 90 per cent. of my troubles have been traceable to the ignition, and by this I do not refer to the ignition system only for there are many things which affect it indirectly. For instance, not long ago my car developed a very annoying miss, which on account of its having but a single cylinder, meant a loss of power sufficient to hamper me a great deal. The car had to be nursed and coaxed over every little rise which under ordinary circumstances would not affect it in the slightest, and muffler explosions would occur every now and again—with startling regularity, one might say.

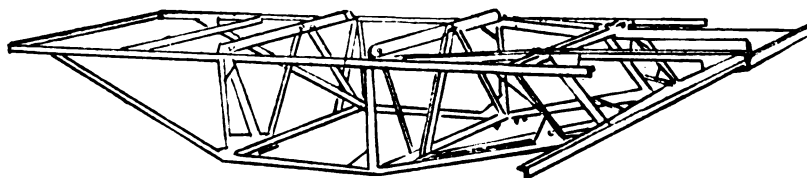
"If I had taken the piece of advice I have just given you, I would have discovered the trouble several days sooner and not suffered anything like the delay to which I was put by the car being practically out of commission, for the engine could not be depended upon to turn over a dozen times without a miss. But the first thing I attributed it to was the carburetter, and over the carburetter I fussed unceasingly, taking it down and putting it up again without the slightest result, adjusting it a hundred times in the course of an hour without the faintest glimmer of hope, although the spasmodic manner in which the engine would at times pick up and run finely often encouraged me to think the defect had been remedied only to have despair sink deeper than ever upon trying it under load. There's no question in my mind that it was one of the most exasperating things that I have come across, but once I had cured it, it did not take me long to see what a great amount of time I had wasted in fooling with the carburetter.

"Of course, I did not confine my attention to that altogether; I took turns in testing the coil, batteries and plug, even replacing the latter with no permanent benefit, until finally an examination of the points revealed the cause. The engine is of the horizontal type so that any excess of oil in the crank case readily finds its way back into the combustion chamber, and that was my trouble. The whole engine was simply flooded with oil and although the plug is seated in a pocket in the upper side of the cylinder the oil was splashing on it continuously, thus effectively insulating the

plugs. Running for half an hour or more without feeding any oil promptly showed that the ignition was at the bottom of it as usual. The system itself was not at fault, but other causes had contributed to prevent its working, which amounted to the same thing, for all the engine needed to perform its work regularly was the spark. Take my advice and look to the ignition first, last and all the time—it is soon enough to worry about the carburetter or something else when you have made sure that the spark is taking place when and where it is most needed and the best coil, batteries and timer ever invented are not much good if the plug is choked up, whether it is soot or oil."

Here's a Novel Frame.

Quite the most novel form of frame that has been thus far devised as the support of the car's motive power is a prominent fea-



ture of a vehicle that is conspicuous for its novel features in other respects. It is known as the Lucas "valveless" car, which is British for two cycle, although the Lucas motor differs radically from the ordinary two cycle type, in that it has but a single U-shaped cylinder in each leg of which there is a piston and connecting rod actuating an independent crankshaft, and which has been described in detail in the Motor World.

The frame takes the form of a triangulated steel lattice girder and despite the number of struts and braces composing it as well as the apparently large amount of metal that enters into its construction, it is very light. Moreover, such is its nature that much greater resisting power is obtained with less expenditure of metal than in the common types. The engine is placed crosswise in the rectangular open space that will be noticed about the center of the frame in the illustration, and as the two flywheels of the former are geared to run in opposite directions the car is said to be particularly free from vibration. Taken as a whole the shape of the frame is that of a flat bottomed skiff, and when complete, which in the present instance means the addition of a sheet metal casing about the sides and bottom, the resemblance is greatly emphasized.

Wholly enclosing the engine and its accessories in a dust and water proof casing not only provides excellent protection, but is claimed by the makers to considerably reduce the amount of dust raised by the car, the pan having a sharp dip fore and aft to the center. In order not to seal the engine up entirely, the body is hinged at both sides of the frame so that it may read-

ily be tilted either way, thus exposing the mechanism lying in the apron, and giving ready access to it at any time for inspection or repair.

Protection of Inner Tubes.

It did not take the professional tire repairer long to see the fallacy of attempting to put a bandage around the shoe of a damaged tire, in order to run home on it, and two or three years ago when the market first began to be flooded with tire bandages, and "first aid to the injured" appliances of various types intended to be laced around the wound, one of the fraternity pointed out to a customer the reason therefor:

"If the cut happens to be a bad one and these things are only designed to take care of bad cuts in the shoe," he said, "there is nothing to prevent the inner tube from bulging up into the cut and being twisted by

the bandage, no matter how tightly it happens to be laced on. If those things were only made to be put around the inner tube, there would be no trouble for the tube could not blow through the hole at all."

It has remained for the makers of the Palmer tires to take advantage of this piece of sage advice, though late in the day, by bringing out the Palmer "air tube protector" which is nothing more or less than the old time tire bandage designed to be used on the inner tube instead of the shoe. The latter having suffered a bad cut which would otherwise permit the air tube to bulge out through the hole and make it impossible to drive on the tire, one of these protectors is slipped over either the repaired inner tube or a spare, immediately under the cut, and as it is made of strong fabric, it will effectually prevent any tendency to bulge at the usual riding pressure. The protectors cover the tube for about 12 inches and as the pressure holds them tightly in place there is no necessity for cementing them on, so that the same one may be used a number of times. The makers claim that the tire can be ridden 200 to 300 miles, if necessary, before making a permanent repair.

King Purchases Home Car.

His Royal Highness, the King of Spain, evidently believes in patronizing home industry as far as possible, which is a trait quite laudable in a king. It is recorded that he has just ordered a car from the only motor manufacturing firm in his domain, the "Sociedad Hispano Suiza" of Barcelona.

SPHERES OF CHAUFFEURS

Wherein they Differ Greatly and why the Coachman Comparison is Unsound.

"Should a chauffeur be merely a 'steerer and cleaner', or should he be a skilled mechanic?" are the two sides of a question taken by different motorists, and the arguments brought to bear pro and con are both interesting and instructive. "To expect every man who drives a car to be a mechanic is as foolish as to expect every man who drives a horse to be a veterinary," says the upholder of the 'steerer and cleaner' end of the debate, and then continuing "Given a car properly tuned up and a good introduction to it, I could get as good results from it as any mechanic. Of course, I could not take down a back axle or a gear box, as I am not competent. Compare the two by putting the driver on the same footing as a coachman in private service; the latter is not expected to be a coach-builder or a horse-shoer.

"Your argument carries its own refutation, for it is based upon an assumption and it falls of its own weight when its foundation is attacked," was the opener of the holder of the "con" end of the argument. "You say 'given a car properly tuned up'. Who is going to keep it tuned up, if not the driver? We are speaking with the average car owner in mind, and such people cannot afford to maintain a whole force of attendants, one to drive, another to clean, another to make adjustments, and so on. Probably 25 per cent. of all motorists are their own chauffeurs, and another 25 per cent. or more cannot afford to keep more than one man to look after their cars, so we may eliminate the man who maintains an 'establishment' from the argument at the very beginning. That effectively riddles your contention founded upon a car 'properly tuned up' for the car will not stay in that condition of its own accord with nothing better than a 'steerer and cleaner' in charge.

"And in making your comparison between the coachman and the driver of a car, you have committed the same error, for a coachman's duties consist of considerably more than simply driving. He must keep both the carriage and its motive power tuned up. He need not be a mechanic, but he must be enough of a handy man to tighten up axle nuts or temporarily repair a broken trace or other part of the harness that defaults on the road. Nor need he be a horse doctor, but he must know enough about horses and their peculiarities and failings to know when to call in a veterinary. A good coachman should understand his business fully as well as the good motor driver, except that the duties of the latter call for more skill and care.

"Taking down a rear live axle or a gear

box is not a job for anyone but a skilled mechanic, and it is, moreover, something that is not necessary more than once in the course of a season's driving, barring an accident. Such a repair no more falls within the province of the average driver than welding a broken coach axle does within that of the coachman. Any comparison founded on extremes must always be misleading for it places things in a totally false light. Repairs of a fundamental nature such as those referred to, or taking up the bearings of the crank shaft and seeing that they are correctly aligned, constitute something that can only be properly handled with the facilities of a well equipped machine shop and a motorist who expects his driver to do such things and do them the way they should be done is looking for a great deal for his money.

"Just what the average driver should know and be capable of are not at all hard to define. That he should be a good 'steerer and cleaner' goes without saying. If he does not know how to drive, it is not a fatal defect, for he can easily be taught. Granted that he is already a driver, he should know every part of the car, know when it is working properly and realize the fact that it is out of adjustment soon after it becomes in that condition. He must know what parts are most likely to go wrong and be able to diagnose the trouble without unnecessary delay in pottering around the car aimlessly, although, of course, there are some simple troubles that will stump the best of men. Unless the break is serious he should always be able to set it right and get home; in short, he should be capable of all 'running repairs' and unless he is, he belongs in the category of 'steerer and cleaner' and nothing higher.

"To sum up the whole matter in a nutshell and put the quietus on your falsely founded arguments for good, it is simply a question of price. If you are looking for a \$10 a week man, you will get a 'steerer and cleaner,' nothing more, and he may not be over efficient at that; in fact, the saving on his salary may be wasted several times over by the damage he causes. But even if he be only on this first rung of the ladder, he will not stay there long. After a few months' experience gained at your expense, he will not hesitate to demand a substantial increase, if he does not actually strike for the union limit of \$25 per week that the chauffeur walking delegates have recently set. Should it not be forthcoming, you will have the job of breaking in another \$10 a week man and he will desert you in the same way sooner or later. If you want to have a man who is a good all round driver, mechanic and repairer and who can keep the car on the road indefinitely and always get home, you have to pay well for it, and even at that such men are in demand. In fact, the supply falls short. When you do find such a man, it will not be unusual to also find that he is capable of taking down that rear axle or gear box, and unless something serious has happened to it, put

it back in good shape within a reasonable time. If a serious break has occurred he will be able to install the replacement part and in many instances save a heavy repair bill as an offset to the higher price you have to pay. The call for chauffeurs of this class is so great that they can command their own price and like the other exclusives, snap their finger and say 'we come high but you must have us' and that's all there is to it."

Chauffeur Problem in China.

The Baroness Ward, whose husband owns one of the largest newspapers printed in China, recently sailed for home with a big Columbia touring car which she selected at the New York show. Before her departure she talked interestingly with a representative of the San Francisco Examiner about automobiling in China. The roads in and around Shanghai, she says, are excellent with no speed limit outside the city, while inside the city a speed of 30 miles an hour is virtually permitted. There are a good many motor cars in Shanghai, but very few arrests have ever taken place. In case of trouble the police take the name of the owner and the number of the car and unless someone is killed or badly injured, prosecution seldom follows. Most of the motorists employ French or Chinese chauffeurs, but the latter are very unsatisfactory. They readily grasp the mechanical end of their work and some of them are good operators although the majority are very careless. The Baroness drives her own car, her experience as a practical motorist covering several years. She, however, has secured an American chauffeur to run her car part of the time.

Effect of "Mobussing" on "Mobusters."

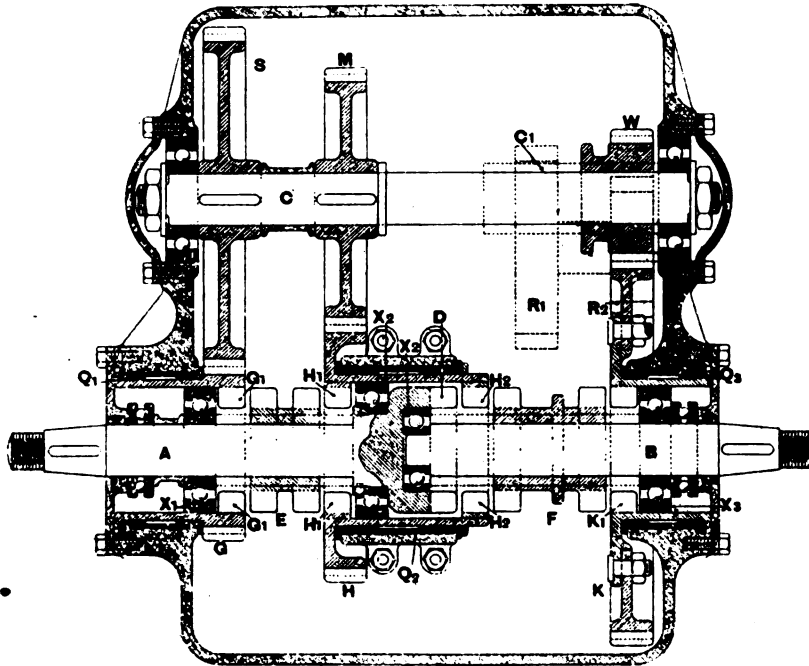
According to foreign prints, "Mobuster" has come to be the popularly sanctioned appellation of the employees on London motor 'buses, whether driver or conductor, and the latest yarn to come to light regarding the changes brought about by the power vehicle, is the large increase in appetite that has been effected. The conductors in particular complain that their craving for food has been heightened and one of them calculated that the demand was almost twice what it had been when he presided over a horsedrawn ark.

The conductor in question ascribed the difference to the greater "rush of air into the lungs," and the increased up and down stairs work, for all London buses are of the double-decked variety. "Carrying more passengers and covering more ground we go up and down many more times collecting fares" was the way he explained it. Since the introduction of the motor driven vehicles, the employees have shorter hours through working in three shifts and are better paid, the conductors receiving \$1.60 per day, and 32 cents a trip on the long Sunday shift, this bringing the total for a full week's work to slightly over \$9.

GEARS THAT DO NOT SLIDE

Ingenious Manner in which Bramley-Moore Effects the Change—Four Forwards, too.

A novel form of transmission in which are combined the compactness and stable formation of the sliding gear type with the special advantages of the individual clutch, by the application of the positive or crab-claw principle, has been evolved recently by one S. Bramley-Moore, of London. It provides for four changes of forward speed without the sliding of a single gear,



and with the same number of gears as is required in the more common system for the accomplishment of three speed changes. Moreover, since, with the exception of the reverse, there are no movable gears, there is no danger of the accidental stripping which always is the bete noir of the novice.

The manner in which this seemingly remarkable arrangement is worked out is distinctly novel, apparently feasible, and but for the multiplicity of bearings, would seem more than ordinarily noteworthy. Ball bearings are used wherever practicable, however, and when the fourth, or high speed is brought into requisition, all gears are idle and out of action, while the driving elements are positively connected, and running in ball bearings.

Taking up the arrangement as shown in the accompanying layout, it will be seen that the driving and driven shafts which are in line according to common practice, are supported in the ends of the case, and meet midway of it, the driven member riding in an annular bearing within the driver. The latter is supported in a riding bearing, which in turn is mounted in a pedestal fixed to the bottom of the case. The lay shaft also, is mounted in annular bearings, and is

provided with two fixed gears, and one sliding member which is held in its normal position except when the reverse is in action.

Keyed to the driving shaft, A, is a sliding clutch member, E, which may be slid into connection with either of the two female members G' and H'. The clutch G', is made integral with a sleeve G, which rides in a plain bearing Q', and carries internally the bearing X', which supports the driving shaft. Externally, it is formed into a gear which meshes constantly with the lay gear S. The clutch H', similarly made, is part of the member H, carrying the gear H mesh-

ing with the secondary gear M on the lay shaft, and running in a plain bearing Q'', set in the case, and carrying internally the ball bearing mounting of the driving shaft A. At the opposite end of this member, is a second clutch, H'', which is adapted to receive the male clutch F, of the driven shaft. A similar clutch D, integral with the driving shaft, carrying the bearing X'', which supports the inner end of the driven shaft E, is also suited to the same purpose. The gear K, is made with a plain bearing Q'', carrying the supporting bearing X'', and having the internal clutch member K', which is mated to the male clutch in the right hand end of the moving part F. The gear W, on the lay shaft, is in mesh with gear K.

For securing the various combinations, the following procedure is adopted. For the first speed, the clutch E, is slid to the left, locking the gear G to the primary driving shaft, A, and actuating the lay shaft through the gear S. Gear W driving the gear K, is connected to the secondary driving shaft through the clutch F, which is moved to the right for the purpose.

For the second speed, the clutch E, is moved to the right, and the primary drive

thus transferred to the pair H-M, the gear W still driving the follower through the gear K. In the third combination, the gears G-S-M-H, are brought into requisition, both clutches being moved to the left, while in the fourth combination, F remains in its former position, while E is thrown into communication with H', the final combination securing the same result but without the use of any gears, being that F is moved to the extreme left, clashing with the clutch D, thus locking together shafts A and B, and E is thrown into its neutral position. For the reverse, the gear W is moved to the left, and made to engage with the idler set R'-R'', the second member of which is constantly in mesh with the gear K.

Although the arrangement suffers somewhat by comparison with the regular types by reason of its apparent complication and the necessarily varied combinations of the elements in securing the changes of speed, it is evident that its certainty of action and strength of connection as well as its compactness, should make its principle worthy of serious consideration.

The Loss of Nuts and Pins.

Vibration is the greatest bugbear that the motorist has to contend against and it is apt to make its presence felt in so many different places that eternal vigilance must ever be the price of safety in this regard as in others. Nuts and pins that have stood hundreds of miles of running on ordinary roads will sometimes work loose and drop off in the course of half an hour's session on a rough way. There is about as much chance of recovering the pin or nut that has dropped on the road as there is of finding the proverbial needle in the haystack and the only reason such a search is ever undertaken is because the driver has forgotten to provide a supply of spare parts of this nature. They are the best friends in need that one can have under the circumstances and as the investment of a dollar or less will supply enough to keep a car in spares for more than the span of its natural life, they constitute cheap and effective insurance.

Who wants a "Gentleman Chauffeur"?

The genteel and lady-like chauffeur has appeared on the scene. He has been some time arriving, but that he is here can hardly be doubted after perusing the following advertisement which recently appeared in a "Situations Wanted" column. Of course, it is extremely vulgar to have to resort to such plebeian means of getting in touch with some person of wealth and taste who wishes to support another appendage of this kind. but what is a gentleman—a real gentleman, mind you—to do when pecuniarily embarrassed and without friends. Hear his plea:

"A young man seeks a place as a motor driver. Being a gentleman, I wish to be a gentleman chauffeur, with a staff of under-chauffeur to clean and do all things dirty."

A DAY WITH A SECOND-HAND

It was no Storage Crock, Either, but the Day was Full of Happenings.

"All this talk about incompetent chauffeurs has considerable foundation in truth, I suppose," remarked a motorist of some experience to a Motor World man recently, "and the constant influx of greenhorns, many of whom have never done anything more mechanical than shovel manure in a stable or drive a horse, is certainly doing nothing to improve matters. While I have been of the game and a considerably interested onlooker ever since it started on any scale, I haven't really been directly in it. Never 'broke into the game,' as the expression goes: always been on the fringe, so to speak. On that account, probably my experience as an unbiased critic is worth something."

"Don't misunderstand me, I have no panacea that will make every applicant for a chauffeur's job a veritable jewel of resource whom nothing will stump, and I have no reform plan for the existing evils. But I have got what I think is an excellent plan to test the capability of the would-be chauffeur who claims that he has had all kinds of experience. You know they all tell you with an air of 'know it all from the ground up' sort about the 'big' cars they have driven. I have come across a number of them and I can't recall one who was ever willing to admit that he had been driving a small car. According to their way of putting it they all dropped into high-priced berths at the wheel of a forty or bigger and they would have you believe that they are so full of knowledge regarding the car and its mechanism that it simply oozes out all over them."

"Probably you have met the type I speak of, so it isn't necessary to describe him any further. The thing I started to tell about was the plan that struck me for showing one of those fellows up before you gave him a job. It's a rather inconvenient one and something that every owner couldn't do, but I think it's good enough for you to write a story about."

"Go ahead, by all means," assented his listener.

"Don't look for anything wonderful or startling, for you will be disappointed. It is merely to take your applicant for a job out on a fifty or seventy-five mile run, in a 'fixed' car—a second-hand will fill the bill without any 'fixing' whatever on your part. I think I can safely guarantee any second-hand car you want to buy to break down at least a dozen times in that distance. Nothing serious, of course, but usually every one of those 'pannes' will call for a thorough knowledge of cars in general to locate and remedy and if your man has had anything like the experience he boasts of, you won't be very long in finding it out. You can tell by the very way he goes about it and his success in doctoring it without unnecessary

delay will show every time. As there are thousands of second-hand cars changing hands just at this time of the year, undoubtedly this will appeal to a great many more people than you think.

"And this is not theory, either; it's cold, hard experience that you have to buy. Being pretty much of a jack at all trades, it didn't cost me a great deal of money—very little, in fact, but it did cost me no end of stiff joints and sore, swollen hands, before I got to know every weak spot on the machine and had remedied it by putting in better metal or re-designing it to suit myself. To digress a bit, the man who is at all mechanically inclined and can't stand the price of a new car, can certainly get a great deal of enjoyment and good service out of a second-hand car that has not been used up."

"My first experience of the kind dates back three or four years, but as the car was not only a freak of the worst sort, but had also been racked to pieces by a reckless devil whom nothing short of forty or fifty miles an hour would satisfy, I won't bore you with the details. Her first owner always wanted to be in the same class with cars of three or four times the power, or five or six times the price and she was certainly a sorry looking wreck and a confirmed invalid. Her makers have since fallen into line by bringing out a car that is modern in every respect, so we'll let their first stroke of genius and exclusive originality rest in peace."

"I was in the market for another second-hand car this spring and after looking round a bit I came across one that suited me. Its former owner was a man who had a record in the game that he could well be proud of for he had bought his first car—a Duryea—way back in 1896, and I say 'way back' advisedly, because I feel confident you could rake New York's motoring community—the biggest in the country, if not in the world, with a fine tooth comb, and not find many such. Since that first acquisition he had probably bought and sold more than \$100,000 worth of cars, for he made a regular practice of buying new cars, using them a season and then disposing of them second-hand. He kept a big private garage in connection with his factory over on the west side of town, and when I first went there he had a pretty complete stud; everything from a last year's runabout up to the latest 1906 model forty-eight or ten cars in all. He had another one out at his country home and was expecting his recent purchases in about May 1st. Kept two men who did nothing else but look after those cars. Naturally you would conclude without a moment's hesitation that it would be hard to buy a second-hand car under better auspices."

"I bought the runabout—one of the single cylinder type with tiller steer of last year's model upon which he had put something like two centuries in the way of extras, including a specially built canopy top that set her off in great shape. Struck me as sort

of top heavy at first glance, but my wife admired it and as a matter of fact it really made the car look as if she were more than a runabout. It didn't take more than one look for me to see that the car had received splendid care, and I made up my mind right then and there. Its former owner told me he had always had trouble with the carburetter and it was there alright. She would miss in the most exasperating manner and the symptoms all pointed to too rich a mixture, but no amount of adjustment had any effect on the erratic firing of the engine which would cause the muffler to fill and explode like a cannon cracker about every other block."

"I spent an hour fooling with the carburetter—then tackled the coil and the connections and the plug in turn, but found nothing whatever the matter with them. I don't know how many hours one of the men at the garage put in doing the same thing, but all to no purpose—she would not fire regularly and some times the power strokes were so few and far between that she would all but stop. Then again the engine would run several blocks without a miss and pulling finely. It was the extremely erratic running that made it so puzzling, and the cannon cracker explosions out of the muffler constituted a free advertisement that was not at all welcome."

"In spite of it, I decided to run out about fifty miles in the country and started off with two passengers early Sunday morning. We got across the ferry without frightening more than half a dozen people, and going through Long Island City she had a good streak and went finely, laying down again when we struck that long hill. By dint of perseverance and nursing we crawled up it with many stops to let the engine catch up. Given a start she would run down hill alright, so we made the fastest half mile so far sliding down the other side. Then she got more and more erratic and stopped several times, but always started up again on the first turn or so of the crank, which made it all the more puzzling. I took the carburetter to pieces, cleaned the nozzle and put it back again. Still the same trouble. Adjusted the coil and got her running finely—light, as soon as we needed the power she was off again, and a mounted copper took advantage of our predicament to break in his horse by riding him alongside."

"The spark plug was brand new so there was no occasion to suspect it, but I took it out and it worked beautifully. That is, after I had wiped it off and there was the cause of the trouble—between the points was a fat drop of fresh lubricating oil. I looked at the cylinder oil cup that holds a pint or more and although it had been filled to the brim before we started, it was now entirely empty. I shut the feed off altogether and refilled the cup, and we started off in great shape running the next eight or ten miles without giving her a drop of oil. We had used up so much gasoline doing nothing that we stopped for more, and at the same time I adjusted the feed to

drop four or five times a minute and only turned her on occasionally. We made the next twenty miles in fine time, even passing more pretentious cars.

"We got within five miles of our destination and took the wrong road, and the sand hills we struck in those woods gave me several hours work. The engine gave up the ghost unceremoniously at the first sand heap, but it only proved to be a broken battery wire and was easily remedied. By the time we had got five to eight miles out of our way over execrable ruts that threatened to separate the car from its wheels, we finally found some one to direct us. Half a mile further we decided we had taken the wrong turn and started to back up. This necessitated taking a steep rise from a stand still, but with the engine racing itself almost off its foundation the car refused to budge, and the change lever could be moved idly back and forth in a way that was positively sickening. Planetary gear, of course, with the brake bands held taut by cams pinned to the shaft moved by the lever. The pin had sheared right off.

"With a pair of pliers as the only available tool, I managed to loosen the nuts holding the band and get the cam back in place. But how to keep it there stumped me. Finally I had an inspiration and bethought me of some lock fittings I intended to use on a barn door. I shoved one of the staples in and we were fixed. It worked fine. Then the high speed began to slip and utterly refused to hold, having become smeared with oil oozing out of the transmission case, so we ran five or six miles on the low and finally reached our destination. I cleaned the leather face of the clutch as well as I could and we started back, but hadn't gone a hundred feet—the lever was idle again and this time the pin holding the rocker arm to the shaft had sheared off, leaving half of it solidly embedded. Everything is so inaccessible about that car that it was a good two hours before I could force the rocker off, take out the pin and get it on again.

"I tried a big wire nail and it clipped in half very neatly just giving it a trial. Then I used the other staple and tried to make a start and the staple that had done such good service on the low collapsed. I put the other leg of it in, and we started off in good shape once more except for the high which still slipped. We hadn't gone a quarter of a mile before both the low gear pin and the rocker pin sheared off again one after the other, the latter while we were running backward to our starting point, as I had come to the conclusion to leave her in the barn and fix things at my leisure. Then we all had to become 'shovers' and, take my word for it, it's no joke to push a twelve hundred pound car over a sandy road.

"Oh, I forgot to tell you about an amusing little adventure we had half an hour or so before arriving at the farm. We were going along at as good a pace as the low would allow—about four miles an hour, and just as we rounded a corner, the en-

gine, which had not been missing for hours, caused an explosion in the muffler. We were almost abreast of a big white farm horse and buggy driven by a ten-year-old boy, who promptly threw down the reins and fell out of the carriage the moment the horse stood on his hind legs. I shut off the power, jumped out and tried to catch the animal, but by that time he had broken free of the harness, burst through a rail fence and was careering down the middle of a twenty acre lot. The boy was almost insane with fear, and as the animal's owner came running up to investigate, he shouted to him: 'He shot, Mr. Baylis, he shot'—evidently meaning that we fired at him. The farmer noticed our number particularly although he didn't say anything, and then made off to recapture his property. The replacement of a rotten strap probably represented the total damage and even that would not have occurred if the infantile driver had kept hold of the reins.

"An obliging farmer drove us four miles to the nearest station in a springless farm wagon and that jolting and bouncing made me more tired than all of the rest of my exertions put together, and if you have ever sweated over a refractory fastening with improvised tools, while laying on the broad of your back and trying to escape hot water and grease dropping into your optics, you know what it is. Take my word for it, if you ever want to test a chauffeur's knowledge and experience make him take a second-hand car out for a fifty or seventy-five mile drive. There is simply no telling what can happen to such a car in that distance. Punctured tires, trouble with the ignition system, carburetter and transmission only begin to sum up what your driver of a 'big' car will have to overcome before he gets through, and if he can take her out and back give him the job, for he deserves it."

Omaha Club to Assist Police.

Determined to assist in the effort to break up the practice of fast speeding by automobilists and incidentally put itself in the right light with the city officials, the Omaha (Nebraska) Automobile Club, at its last meeting, passed these resolutions:

"Be it resolved, by the Omaha Automobile club, That it is the sense of this club that fast and reckless driving of automobiles in the business districts of the city be discouraged and the club hereby tenders its aid and support to the police department of the city in an effort to put a stop to such reckless driving, and,

"Resolved, That this club pledges itself to aid and assist in apprehending and prosecuting any and all persons for reckless driving in said city of Omaha, and respectfully asks the co-operation of the police department to the end that such practices may be stopped, and,

"Resolved, That it shall be the duty of members of the club seeing or knowing of

such reckless driving to report the same to the chief of police and request that a complaint be filed against such person, and,

"Resolved, Further, that this club protect and defend its members against assaults, unjust arrests and improper prosecutions for alleged violations of the laws and ordinances."

Following the adoption of the foregoing resolution the club elected the following officers: President, Dr. F. N. Connor; first vice-president, Charles Brown; second vice-president, J. F. De Jarnette; secretary, E. L. McShane; treasurer, Emil Brandeis; trustees—Harry L. Cummings, Gould Dietz and Louis C. Nash.

Results of Club Elections.

At its annual meeting the Davenport (Iowa) Automobile Club elected these officers: President, A. E. Rosenthal; vice-president, George A. Gould; secretary, A. H. Ruesbam; treasurer, J. H. Haas; directors—Dr. A. L. Hagebeck, F. W. Wernentin, Benjamin L. Schmidt, A. E. Rosenthal, George A. Gould, A. H. Ruesbam and J. H. Hass.

The following officers have been elected to serve the Louisville (Ky.) Automobile Club: President, George H. Wilson; first vice-president, Dr. W. C. Pfingst; second vice-president, Thruston Ballard; secretary, Charles Chrest, and treasurer, J. D. Lewman.

Frank Miller was elected president of the Automobile Club of Bridgeport, Conn., at the annual meeting last week. The other officers chosen were: Edward A. Godfrey, vice-president; Frank T. Staples, treasurer; William E. Seeley, secretary, and Henry H. Taylor, Silas Burton and Arthur K. L. Watson, governors.

These officers were elected at the last meeting of the Peoria (Ill.) Automobile Club: President, B. H. Onken; vice-president, R. A. Whitney; treasurer, H. W. Rees; directors—J. B. Bartholemew, S. K. Hatfield, L. C. Wheeler and M. E. Mayruder.

One-eyedness of the Motorphobe.

"There is an autophobist in Hackensack, N. J., who is collecting all of the motor car accidents every week and furnishing notes to his paper," says the Newark Sunday Call. "He didn't observe the fact that two men were killed in the Middle States last week by bricks falling from old chimneys and that seventeen deaths occurred from railroad crossing accidents. He can't see much further than what an acetylene searchlight shows up in front of a benzine wagon."

France's Exchange with England.

During January, February and March of the present year, French manufacturers sold no less than 1,171 cars in England. They represented an aggregate value of considerably more than \$2,000,000. In the same time England sent to France exactly 10 cars, of a total value of \$30,000.

The Week's Patents.

817,641. Carbureter. Coleman B. Harris, Wilmington, Del. Filed Nov. 18, 1904. Serial No. 233,328.

Claim.—1. A carbureter including a substantially horizontal conduit connected to a source of air-supply and having means for the admission of liquid fuel, with a deflecting-partition in the conduit for directing the current of air toward the bottom of said conduit and causing it to take up liquid fuel therein, and a priming-valve in addition to said fuel-admission means, substantially as described.

817,671. Oil Engine. Canfield J. Rousseau, New York, N. Y., and Elmer C. Ferris, Stamford, Conn. Filed March 1, 1905. Serial No. 247,975.

Claim.—1. The combination with the casting forming an engine-bed, of a projecting portion thereon, a removable cover therefor and an oil-tank adapted to be placed inside of said casting and provided with a projecting spout extending into the projecting portion of the casting.

817,678. Vehicle Brake. Wilber H. Smith, Bar Harbor, Me. Filed Sept. 2, 1905. Serial No. 276,845.

Claim.—1. The combination with a vehicle-wheel of a band-rim secured to the spokes thereof and about the hub, and adjustable reinforcing and centering devices interposed between the rim and hub.

817,682. Seat Suspension for Motor Vehicles. Oscar Werner, New York, N. Y. Filed Sept. 16, 1905. Serial No. 278,736.

Claim.—1. In a motor-vehicle, a chassis, suspension-springs supporting said chassis upon the front and rear axles, a rear seat, a relatively light auxiliary spring supporting said seat from the chassis, a frame for said seat, and a localizing connection between said frame and the chassis, said connection being disposed in a transverse plane centrally between the front and rear zones of major vertical shock vibrations.

817,692. Radiator. Frank Briscoe, Detroit Mich., assignor to Briscoe Manufacturing Company, Detroit, Mich., a corporation. Filed March 24, 1905. Serial No. 251,730.

Claim.—1. A radiator comprising a plurality of rows of conduits with the individual conduits of adjacent rows staggered in relation to each other, gang-fins sleeved upon and connecting the conduits of adjacent rows, said fins together completing and substantially filling the rectangle surrounding said rows of conduits, whereby all available space for radiating-surface is utilized.

817,706. Air and Gas Engine. Allen O. Haney, Shakespeare, Ind. Filed Dec. 21, 1904. Serial No. 237,778.

Claim.—An air and gas engine, employing a cylinder having an inner piston-chamber opening into the intake end of said cylinder, and oppositely-moving pistons, said piston-chamber having a single inlet-port also communicating with said cylinder-intake end and delivering the gas and air charge, after initial compression, to the opposing action of the pistons, said inlet-port also communicating with said cylinder-intake end and delivering the gas and air charge, after initial compression, to the opposing action of the pistons, said inlet-port also adapted to be shut off by one of said pistons in its forward or compressing movement, and said piston-cylinder also having

a single exhaust-port adapted to be uncovered by the opposite piston, in its rearward movement, after the exploding of said charge, substantially as set forth.

817,730. Electrical Friction-Clutch. Harry A. Williams, Akron, Ohio. Filed Oct. 22, 1904. Serial No. 229,522.

Claim.—1. The combination of a shaft, a driving-pulley, a driving-disk having an elongated hub and carrying non-magnetic retaining blocks, a series of recessed contact-rings engaging said blocks, and a pressure-disk movable on said elongated hub adapted to bear against said rings; with a driven pulley carrying non-magnetic retaining-blocks, a series of recessed contact-rings engaging said blocks, said series of rings forming part of a magnetic circuit, and electrical connections whereby said pressure-disk is moved to press the contact-rings into frictional contact to drive the driven pulley.

817,787. Vehicle Wheel. Frederick J. Lancaster, New York, N. Y. Filed Jan. 25, 1905. Serial No. 242,596.

Claim.—1. The combination with a vehicle-wheel felly, of an annular series of independent springs arranged around the wheel-felly, and a tire of rubber compound or analogous material having an annular series of inwardly-extended lugs overlapping the springs whereby the tire is interlocked to and yieldingly spaced from the felly by the said springs.

817,903. Carburetter. Alphonso S. Comstock, Evanston, Ill. Filed April 22, 1905. Serial No. 256,906.

Claim.—1. In a carburetter, in combination, an air-passage, a fuel-passage, a carbureting-passage having an opening to the atmosphere and receiving from the fuel-passage and delivering to the air-passage, and means for simultaneously controlling the flow of air and fuel through the air and fuel passages, respectively, the flow of air through the carbureting-passage being independent of such controlling means.

817,905. Motive Power Engine. Paul Daniel, Levallois-Perret, near Paris, France. Filed Dec. 8, 1902. Serial No. 134,354.

Claim.—In an engine of the character described, the combination with a plurality of cylinders arranged side by side, pistons therein, a shaft passing through the pistons and slidable within the cylinders, rollers arranged upon the shaft, one within each piston, a driving shaft and elliptical cams mounted as described upon the driving-shaft and elliptical cams mounted as described upon the driving shaft and bearing upon the rollers, two tubes arranged exteriorly of each set of cylinders, an automatic inlet-valve closing each tube at its upper end, a piston working in each tube, aid rods carrying the pistons and mounted on the shaft which passes through the first-mentioned pistons, a spindle carried by each of the power-pistons, a transverse shaft screwing into each spindle and a roller mounted upon each of said transverse shafts and running upon a bearing-surface on each elliptical cam in the manner described.

817,908. Transmission Gear. William Folberth, Cleveland, Ohio. Filed Oct. 31, 1905. Serial No. 285,322.

Claim.—1. The combination in a three-speed transmission-gear, of a driving-pinion, two friction clutches, a gear connected with one member of each clutch, and twin pinions engaging the driving-pinion and the gears of the different clutches, substantially as set forth.

817,933. Grip-Tread for Pneumatic Tires.

WANTS AND FOR SALE.

15 cents per line of seven words, cash with order.

In capitals, 25 cents per line.

A TEN PASSENGER wagonette; sample car, 1905-1906 model steam; price and description on application. THOMPSON AUTO CO., Olneyville Sq., Providence, R. I.

WANTED—Your auto tires; don't throw them away; we rebuild and do retreading; guaranteed to last like new; less than one-third the cost of new casings. MEYER RUBBER VULCANIZING WORKS, Anderson, Ind.

FOR SALE—Yale 1903 Touring Car; two cylinder; 12 horse power; good condition; price, \$600. C. G. BILL, Unionville, Conn.

AUTOMOBILE FOR SALE at a Bargain. 1905 Rambler Surrey Type 1, special color, three extra tubes, one shoe, cape top and other extras costing over \$1,500. This car is in fine condition and run only about 1,700 miles. Will demonstrate thoroughly and sell at sacrifice. Excellent reason for selling. Don't miss this chance, but write at once for price and particulars to W. R. OLNEY, Oneida, N. Y.

WANTED—A position with some private party as chauffeur; am a first-class machinist and have had plenty of road experience; will go anywhere; reasonable salary expected; best of references. G. R. WELLS, 37 Clarke St., Torrington, Conn.

SECOND-HAND CARS are frequently better than new ones, if thoroughly overhauled. We have a few of leading makes that are. It is money in your pocket to get our list before buying. DURYEA POWER CO., Dept. P., Reading, Pa.

FOR SALE—One Hartford automobile tire vulcanizer with 3-inch round die and base, one flat die and clamp for double-tube tires, and thermometer; never used; price low. Address GEO. O. HAWES, Sanford, Me.

FOR SALE—Four new two-cylinder, vertical, Continental engines. Cylinders 4-inch bore by 4¼-inch stroke, about 12 H. P. Cash offer wanted; cost new \$175 each. A. D. MEISELBACH MOTOR WAGON CO., North Milwaukee, Wis.

SITUATION WANTED—Chauffeur, German, experienced on Foreign and American cars, wants position. Can make all repairs. Good references. OTTO BAHN, Saloon, 332 Hudson St., Hoboken, N. J.

PURCHASING AGENT WANTED.

One with experience as buyer for Automobile concern. State age, experience and salary.

Address R. B. CO., Box 649,

New York City

Arthur H. Parker, Sr., Auburn, N. Y. Filed Feb. 16, 1905. Serial No. 245,906.

Claim.—1. A grip-tread for tires comprising a circular series of metal plates seated on the tread of the tire and each provided with a rib having sliding interlocking connection therewith, and means for holding the plates on the tire.

817,934. Spring Wheel. Reginald B. Parsons, Kingston-on-Hull, England. Filed March 15, 1905. Serial No. 250,261.

Claim.—In a spring wheel, the combination of an inner rim, an outer rim of flat steel, spindles rigidly connected to said rim and movable freely through said inner rim, springs encircling said spindles respectively, the outer ends of said spindles being extended outward considerably beyond said outer rim, and a solid-rubber tire encircling said outer rim in which the outwardly-projecting ends of said spindles are embedded, said inner and outer rims being thickened in proximity to said spindles by means of washer-plates secured thereto, substantially as described.

817,941. Carburetter. Charles Stute, Newark, N. J. Filed March 25, 1905. Serial No. 251,927.

Claim.—1. A carburetter comprising a main body having its upper portion made open and provided with a screw-thread, a cover screwed down over said open portion, said cover being formed with a centrally-disposed opening, a cylindrical body within said main body having its upper end portion of said cylindrical body extending below the closed bottom of said main body, a screen in said lower and open end portion of said cylindrical body, an upwardly-extending flange on said cover, said flange surrounding the opening in said cover, and a laterally-extending tubular body upon and connected with said flange, said laterally-extending body and cover being both removably arranged upon the said main body, a centrally-guided inlet-valve in the upper and open end of said cylindrical body, a means of attachment at one end of said laterally extending body, said valves being arranged so that the back-fire will close said inlet-valve and will open said relief-valve, substantially as and for the purposes set forth.

818,060. Pneumatic Wheel. Richard Thew and Hollis H. Harris, Lorain, Ohio. Filed Dec. 19, 1904. Serial No. 237,391.

Claim.—1. The combination of a sleeve adapted to surround the axle, an annular member mounted on said sleeve, a cushion on said annular member, a wheel having a hollow casing surrounding said cushion, a collar on the axle bearing against said sleeve and holding said annular member in place, and means for holding the collar in place.

818,107. Power Transmission Mechanism. Rotal A. Morton, San Jose, Cal. Filed June 15, 1905. Serial No. 265,348.

Claim.—1. In a power transmission, the combination with a drive-disk, of friction rollers arranged upon opposite sides of the disk, means to drive said rollers simultaneously and in opposite directions and means to move said rollers in unison into and out of engagement with the drive-disk, said last-named means including a rock-shaft having oppositely extending arms and connections between said arms and the rollers.

818,161. Non-Grinding Power Transmission Device. David S. Grant, Stoneham, Mass. Filed June 12, 1905. Serial No. 264,781.

Claim.—1. In a non-grinding power-transmission device, a pair of interlocking members capable of being engaged and disengaged with each other, one of said members being loose on its mounting; and means for causing such engagement and disengagement; in combination with means for limiting the change of position of said loose member relative to its mounting; and elastic means for automatically maintaining said member about midway between the limits of said change when said members are disengaged, substantially as set forth.

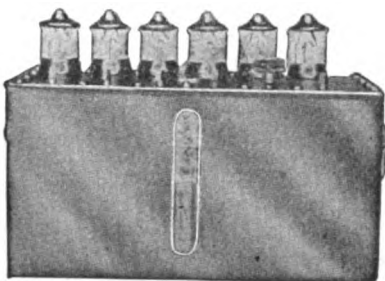
818,166. Valve Gear. Wilhelm Hartmann, Berlin, Germany. Filed June 2, 1904. Serial No. 210,826.

Claim.—1. A valve gear for intermittently and positively actuating a valve, comprising a valve-lever connected with the valve, a rocking cam engaging the said valve-lever, for the latter to open the valve, and a clutch member rocking in unison with the said rocking cam, said clutch member being mounted on the pivot of the valve-lever engaging the said valve-lever, to impart a return motion to the same, for closing the valve.

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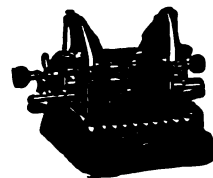
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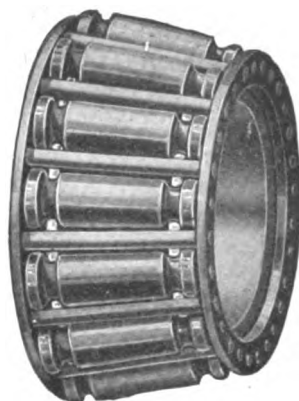
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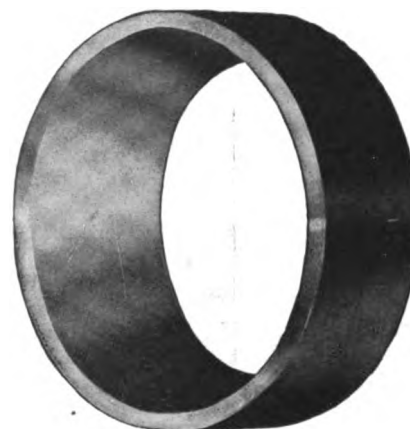
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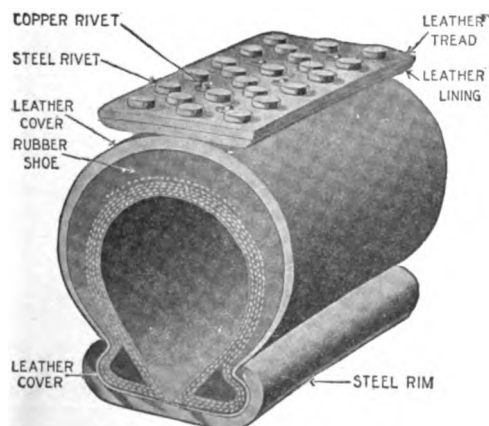
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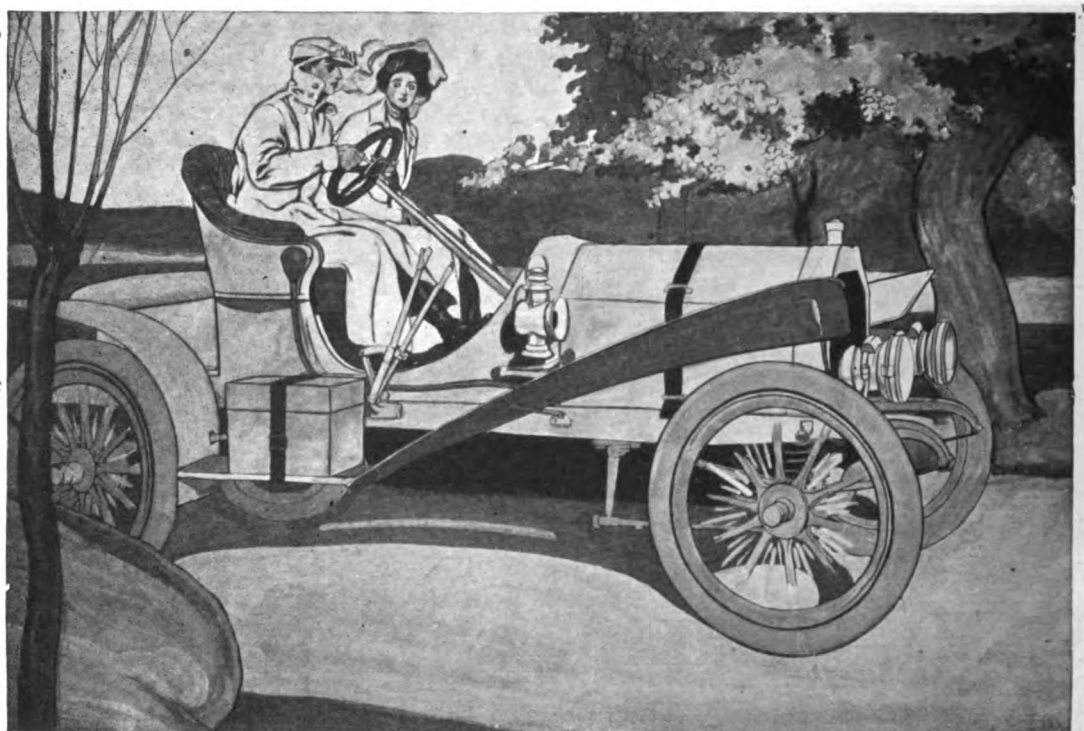
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For a rim-cut tire is pretty near its finish.

And the chances are ten to one that if you are forced to ride around the block on a deflated ordinary tire with ordinary rims your tire will be rim cut before you get there. Because ordinary rims are just like a dull jack-knife.



Fig. 2

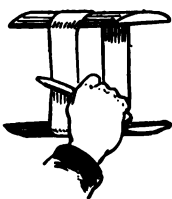


Fig. 1



Fig. 3

like Fig. 1 you couldn't do it, because your strength would not be great enough. But if you

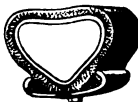


Fig. 4

take the strap like Fig. 2, with a little sawing you can cut it. That's exactly the

way the ordinary rim cuts the ordinary tire. When the tire is inflated, like Fig. 3, even the tremendous weight of the car is not sufficient to cause the rim



Fig. 5

to cut the tire. But just as soon as it gets partly deflated or flat, like Fig. 4, then the rim begins to cut it, just as the knife did the strap in Fig. 2.

Now look at the picture of the Goodyear Auto Tire on the Goodyear Universal Rim (Fig. 5.) The portion of the rim against which the tire rests forms the arc of a large circle.

That rim can no more cut the tire than you could have cut the strap by using the handle of the knife instead of the blade.

Notice the edge of the ordinary rim used with ordinary tires (made into a circle), in Fig. 6, and compare with the Goodyear Universal Rim, used with Goodyear Auto Tires (Fig. 7.) Then you can see more clearly what we mean.

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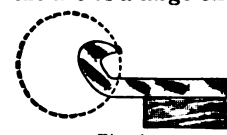


Fig. 6



Fig. 7

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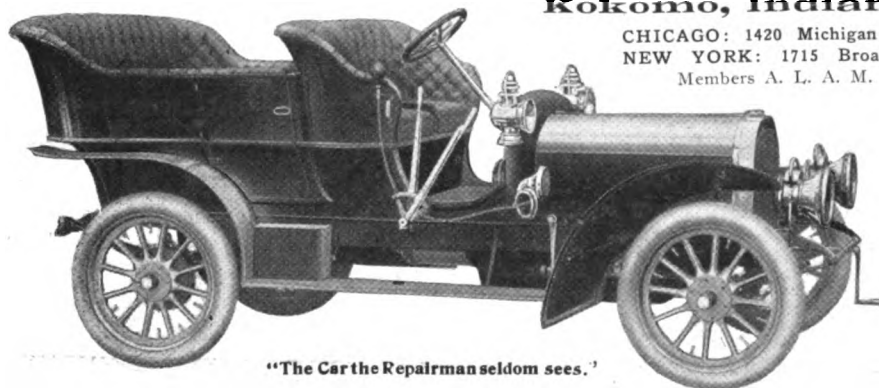
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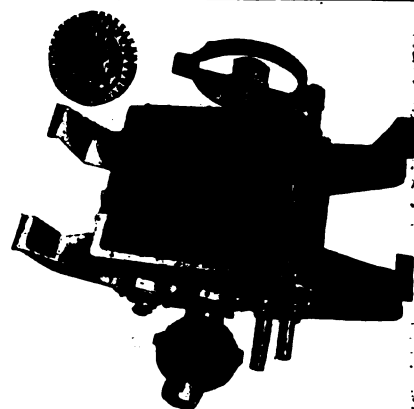
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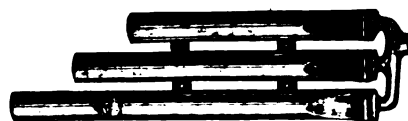
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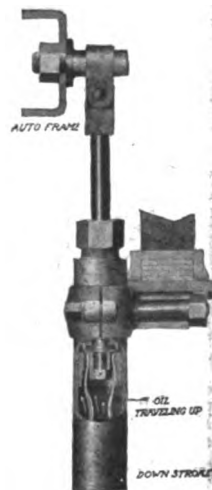
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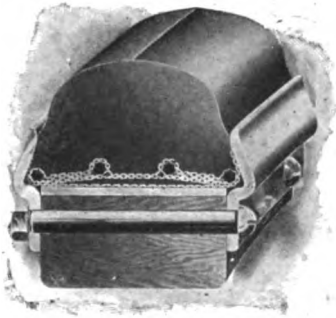
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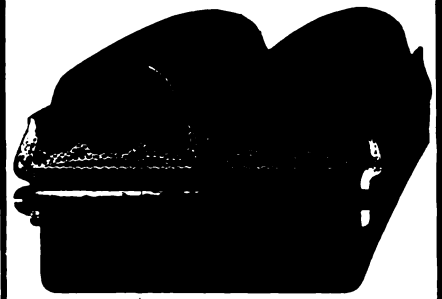


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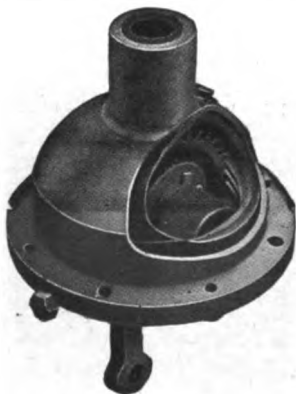
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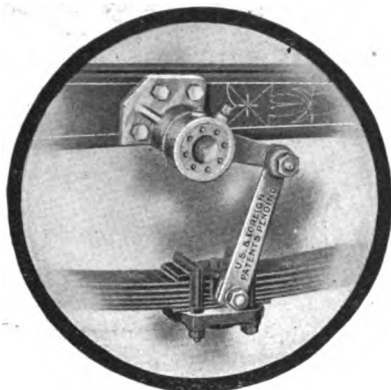
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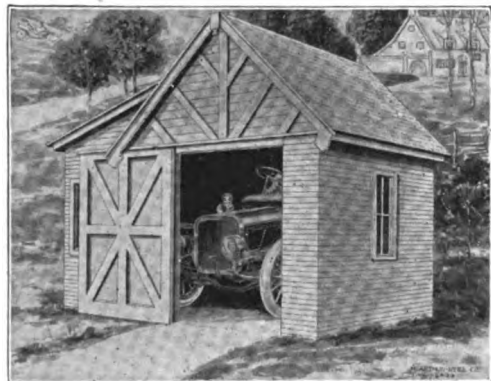
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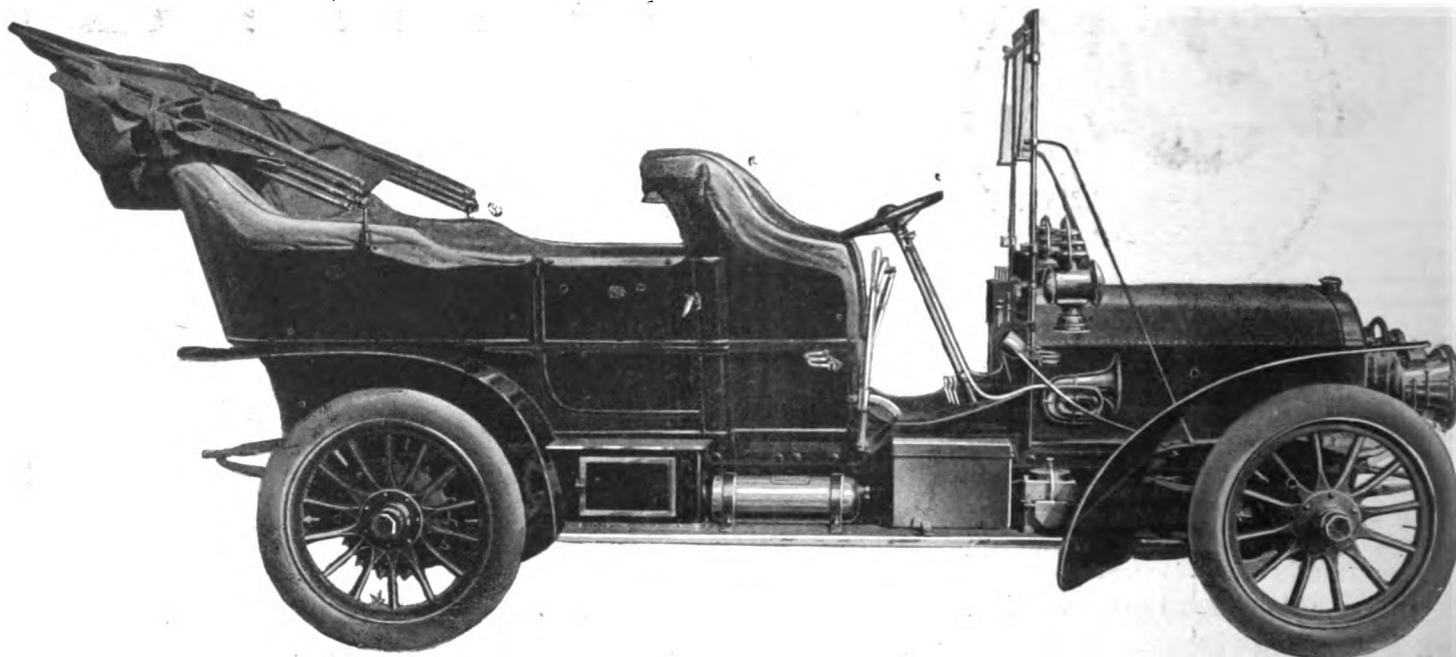
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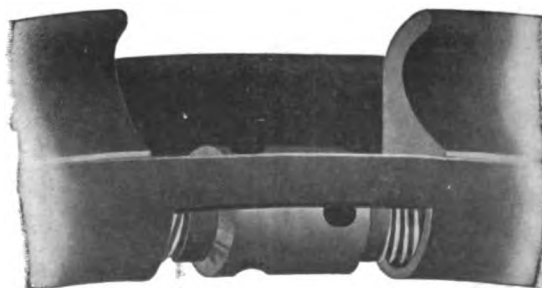
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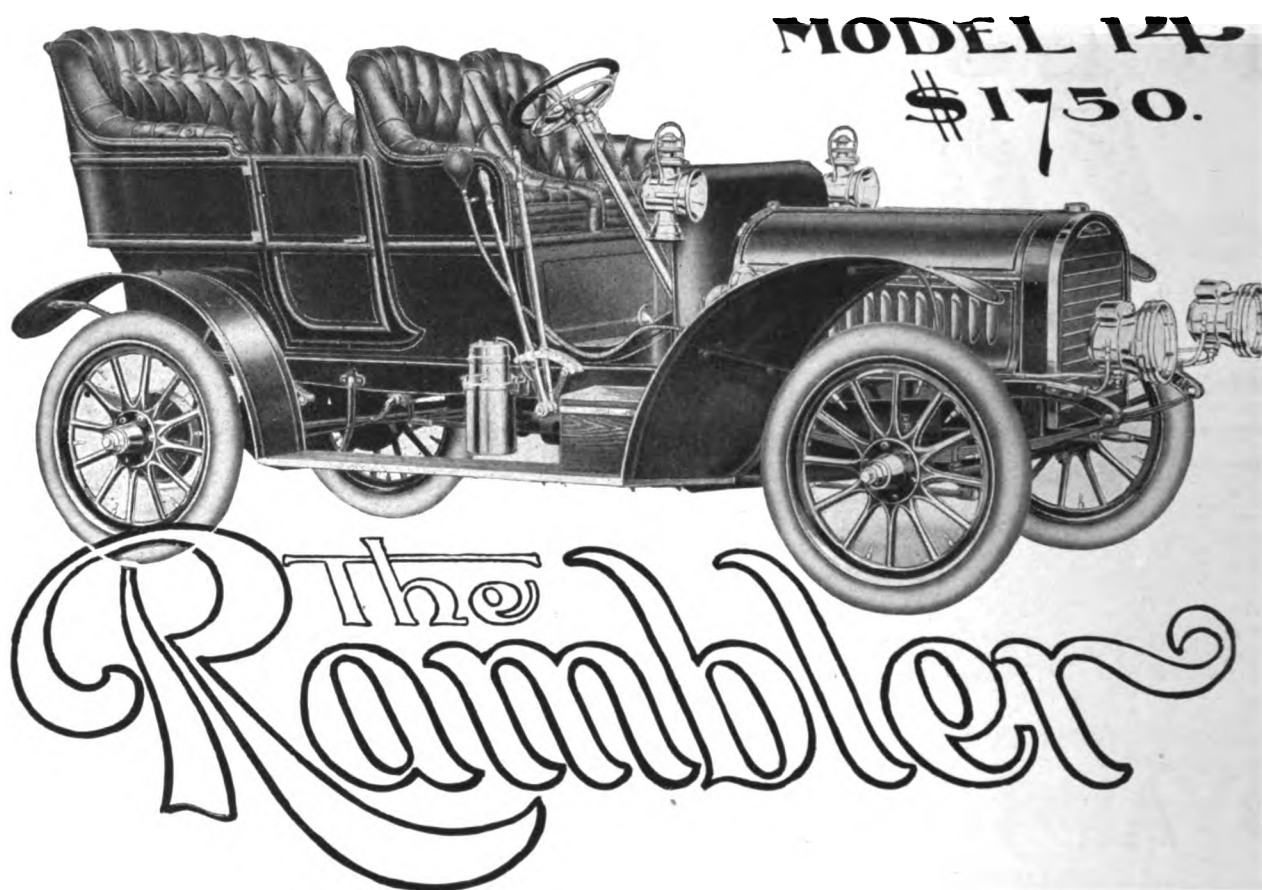
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No. 15

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**Chapin, Coffin and other Olds Men also
in it—Factory in Detroit.**

Reports that Roy D. Chapin, formerly sales manager of the Olds Motor Works, was engaged in the organization of a new automobile manufacturing company; and that H. E. Coffin, chief engineer of the Olds interests, was making ready to sever his connection with Olds, which reports had been denied, received ample confirmation this week. Not only has Mr. Chapin formed the new company, but Mr. Coffin has joined hands with him, together with F. O. Benzer and J. J. Brady, who were respectively the Olds purchasing agent and traffic manager.

However great may be the surprise caused by this coalition, it will be as nothing compared with the news that E. R. Thomas, the well-known manufacturer of Thomas cars, is one of the backers of the new company, which will be known as the E. R. Thomas Detroit Company. Not the merest inkling of Mr. Thomas's connection with the venture had been permitted to leak out and nothing of the sort had been even suspected. The new concern has been incorporated with a capital stock of \$300,000, and already has leased the former Wayne plant in Detroit and set up temporary offices in the Majestic Building in that city. These offices will be maintained until the remodeling of the offices in the factory building has been completed.

The car that will be produced will be styled the Thomas, and while but a mere intimation of its nature has been permitted to escape, the intimation is sufficient to make plain that it will be of the runabout or light touring car type, thus affording a lower priced companion for the Thomas Flyer; for, be it understood, the entire output of the Detroit factory, for the season of 1907, at least, will be handled by the E. R. Thomas Motor Company, at Buffalo.

With such experienced hands at the helm, that the new enterprise will prove a considerable factor in the trade almost goes without saying.

Why Show Accounting is Delayed.

Although the affairs of practically all the other shows have been cleared up, those of the "independent" show, held in the 69th Regiment Armory, New York, are not yet settled. The delay has been ascribed to many causes, but it came out this week that the real reason is due to the attitude of the contractor concerned with the building of the armory, which, as it will be recalled, was not wholly finished at the time of the show.

While there was no great evidence of damage, the contractor's keen eyes are said to have discovered that the holding of the automobile show in the structure caused injury to the walls or other parts to the extent of some \$20,000. He has filed a formal, or informal, claim for this amount, and until this is settled the Automobile Club of America, which stood as sponsor for the show, will be unable to strike a balance or to render an accounting to the American Motor Car Manufacturers' Association and the Motor and Accessory Manufacturers, who are to participate in the profits.

Whatever profits may be rendered, by the bye, will be rather smaller than would have been the case had the exhibition not been held in an unfinished public building. It is said that before permission to use the armory was obtained it was necessary to "see" several gentlemen of influence in politics, and the "seeing" cost a pretty penny.

No Show for New Orleans.

There will be no automobile show in New Orleans this spring. The promoters have found it advisable to postpone action until some date in the fall or early next year, although nothing definite has been decided on. "Weather too hot and dealers too busy" are the reasons given for the temporary abandonment of the project.

Selden Takes the Stand.

George B. Selden is this week giving testimony in the case of the Electric Vehicle Company versus the Ford Motor Company for infringement of the Selden patent. Despite the extended litigation in which that patent has been involved, this is said to be the first occasion on which Mr. Selden himself has taken the stand.

WILL REMOVE TO NEW YORK

**"Independents" Headquarters to Come
East—More Action on May 15th.**

New York is about to become the headquarters of the American Motor Car Manufacturers' Association, which will be New York's gain and Chicago's loss. The removal was decided on at the meeting of the board of management of the association, held in the Manhattan Hotel, New York, on Friday last, the 4th inst. Offices are to be established on West 42nd street, at no great distance from the headquarters of the Association of Licensed Automobile Manufacturers.

This decision and the appointment of a committee to attend the free alcohol hearing at Washington, and to urge the passage of the free alcohol bill, were the chief developments of the meeting so far as the outside world is concerned. The session lasted, however, from noon until 6:30 p. m.

No action was taken toward filling the vacant general managership caused by the resignation of R. B. MacMullen. There are on file a number of applications for the position, but no selection will be made until the next meeting, May 15th, at which it is expected there will be a larger attendance. Action on the projected open air show this fall was also deferred until that date for the same reason.

There were present at Friday's meeting Messrs. Couzens, Lewis, Briscoe, Duryea and Vandervort.

Midgley Becomes Hartford's Head.

The Hartford Rubber Works Co. has a new president, Thomas Midgley, who was elected at the meeting of the Board of Directors on Tuesday last. Mr. Midgley, who only recently came from Columbus, Ohio, to assume the duties of vice-president, succeeds Charles H. Dale, who is the head of the whole Rubber Goods Manufacturing Company.

Mr. Dale resigned the Hartford presidency because he found it impossible to give to the office the particular attention which it required.

obtained about noon on the 19th, when he learned that the Market street store was completely destroyed and he then wired the home office to that effect.

Owing to lack of room or the large number of cars on hand, it was impossible to keep the entire stock at the Rambler garage and, on the morning of the disturbance, stock was disposed of as follows: Fourteen cars were at 1331 Market street, eleven at Freed's bicycle establishment on the opposite of Market street, and fourteen cars at a warehouse on Bluxome street. On this stock Mr. Bill was carrying an insurance aggregating \$32,800.

At the same time there were in the hands of the railway company at the yards ready for delivery, one carload of delivery wagons and one carload of model 14's. These were destroyed by fire as were all the cars on Bluxome street and at Freed's bicycle store.

Fred Linz, one of the attaches of the San Francisco store, reported to Mr. Bill on the morning of the 20th that during the night the wind had suddenly changed direction and the Rambler garage on Market street and Freed's place were entirely destroyed by fire early that morning. He also reported that the cars at the garage had previously been removed to a safe place near the Park Panhandle.

Upon receipt of this report Mr. Bill attempted to send men in to get the cars that were still in good order, but none of them returned, and he learned on fairly good authority that both men and cars had been impressed by the military and that they were then serving at the point of the bayonet.

On the 21st Mr. Bill succeeded in reaching the wreck of the Market street store, but was not allowed to enter. He reports that the safe appeared intact, but that everything else was utterly destroyed and that he could at that time obtain no information as to the whereabouts of the cars saved from the fire.

A temporary office has been opened at 421 Ninth street, Oakland, and a shipment of new cars and a full supply of parts is already on the way.

While most of the automobile interests in the stricken city have been accounted for by the terse phrase "lost everything," it appears from advices just received at the New York office, that the White garage proved to be one of the most fortunate, as the forty or fifty cars on hand were, with few exceptions, stored on the ground floor and as the earthquake did not damage the building they were easily run out and saved. The exceptions consisted of three cars that were in the paint shop on the upper floor at the time and as the power stopped there was no way of getting them out. These, together with the stock of parts, were destroyed. With the spread of the fire the building had to be abandoned, all books and records except the letter files being saved.

The cars were run out to a place in the outskirts where a temporary open air garage was established.

In the Retail World.

Fire in the garage of the Knox Automobile Co., at Allentown, Pa., on Friday of last week, caused damage to the extent of \$6,000; there is \$3,000 insurance. Most of the automobiles in the place were saved.

The H. J. Williard Company, the well-known dealers of Portland, Maine, have opened a branch at Lewiston, it being located at 48 Ash street. Peerless, Winton, Cadillac, Buick and Franklin cars will be carried.

F. E. Avery, the Columbus, Ohio, dealer, has so benefitted by the general prosperity that he has been compelled to seek more elbow room. To secure it he is having built a two-story addition, 40x65 feet, which will be used for storage purposes.

Julius Ruff and E. Schuester have formed the Auto Renting Co., and have located at 138 West Thirty-eighth street, New York City. They have purchased ten Packard touring cars, for renting purposes and engaged competent chauffeurs to operate them.

Clute Bros., electricians, at Cohoes, N. Y., have taken the agency for the extensive line of Pope cars. As a result they are preparing to expand, having leased the spacious store opposite the Miller House, on Mohawk street, which they will equip as a garage and salesroom.

A shift has been made in the selling agency of Cadillac cars in Kansas City. The Cadillac Company of Kansas City, of which Fred Pattee was manager, is succeeded by the Cadillac Automobile Company of Kansas City, which is controlled and will be managed by J. D. McInnes.

Plans for a modern garage on North near Prospect avenue, Milwaukee, Wis., are being made for Fred Herwig, who has acquired the store property there. The present building will be utilized, and about \$6,000 spent in improvements. When completed it will be 100 feet in depth with a 30-foot frontage on North avenue.

For several years the automobile owners in Hornellsville, N. Y., have wished for a garage and now their hopes are to become an actuality. George S. Peters, the pioneer automobilist of that place, has contracted for a garage to be located at the corner of Cass and Union streets. It will be one-story high, of brick and cement construction and will measure 71x40 feet.

Robert Nelms and R. L. Atkinson, two Jacksonville, Fla., young men of experience in the bicycle and automobile business, have formed a partnership and will conduct a garage, which is now in the course of construction, at 44-46 West Adams street. The building will be two stories high, of white pressed brick, and will measure 42x75 feet. A one-story machine shop, 25x30 feet, will be erected in the rear.

From the ashes of the Thompson-Schoeffel building on Plymouth avenue, Rochester, N. Y., will rise a four-story brick building which will be used by the Schoeffel

Auto and Livery Co., which is the successor of the Thompson-Schoeffel Co. Since the fire last month the company has been located at Caledonia avenue and Spring street. In addition to handling the Royal, the company will take on the Reo.

The new \$25,000 garage of the Stoddard-Dayton Automobile Co., at Grand Boulevard and Fortieth street, Chicago, Ill., was opened May 1. The building has accommodation for over 100 cars and each patron will have a private compartment, separated from the others by steel wire and under lock and key. The building is two stories high, and is fireproof, being constructed of pressed brick and white glazed tile. The company will also conduct a renting department with 1906 models for hire at \$3 per hour.

The Week's Incorporations.

New York City.—Auto Service Co., under New York laws, with \$50,000 capital. Corporators—R. Bolshaw, Elmer Stouffer and David Hyams, all of New York.

Saginaw, Mich.—Jackson, Church & Wilcox Co., under Michigan laws, with \$25,000 capital; to make automobiles and machinery. Corporators—John L. Jackson, M. L. Wilcox and E. D. Church, all of Jackson.

St. Louis, Mo.—Commercial Motor Car Co., under Missouri laws, with \$10,000 capital. Corporators—Charles B. McKinney, Frank E. Sturns, Lou E. Stevens and Eugenia E. McKinney.

New York City, N. Y.—Rothschild & Co., under New York laws, with \$30,000 capital; to deal in automobiles. Corporators—W. H. Mendel, M. J. Rothschild and N. D. Reich, all of New York City.

New York City, N. Y.—Welch Motor Car Co., under New York laws, with \$10,000 capital; to deal in automobiles. Corporators—C. A. Hamilton, Burgoyne Hamilton, and L. H. Pehrman, all of New York City.

New York City, N. Y.—R. Bertelli & Co., under New York laws, with \$75,000 capital; to manufacture engines and deal in automobiles. Corporators—R. R. Bertelli, E. Paladina and C. Piva, all of New York City.

Boston, Mass.—Observation Automobile Co., under Massachusetts laws, with \$10,000 capital; to deal in automobiles. Corporators—Norma Drew, 235 Ocean street, Lynn; Barton L. Thomas, 107 Warren avenue, Boston.

Philadelphia, Pa.—Auto Transit Co., under Pennsylvania laws, with \$100,000 capital; to operate automobile passenger line. Corporators—Charles S. Pierce, Charles Berg, James O. G. Duffy, Bernard A. Cassidy and John R. Criswell, all of Philadelphia.

New York City, N. Y.—The Rossel Co. of America, under New York laws, with \$100,000 capital; to deal in automobiles. Corporators—Harry N. Fletcher, Francois Rossel, William S. Ottman, Count Manuel de Caserta, Charles M. Eaton and William P. S. Earle.

BUFFALO'S BUBBLE BURST

It was a very Pretty One but Exposure to New York Air Caused Collapse.

Up in Buffalo, N. Y., there are some public spirited gentlemen who dreamed a large dream which carried with it the settlement of all trade differences respecting shows, the settlement revolving around Buffalo as a show center. The dream was so pleasant that the gentlemen came to New York last week and painted their dream picture for the benefit of both the National Association of Automobile Manufacturers and the American Motor Car Manufacturers' Association. The Buffalo committee waited on both organizations and unfolded in glowing colors the advantages of one large national show to be held in Buffalo during, say, October next.

Buffalo is possessed of a very large and palatial armory, which the gentlemen were convinced would house the entire industry. The Buffalo armory, however, will have no opportunity to house the industry, as suggested. Both Associations courteously listened to the Buffalo committee and then respectfully declined, the action of the N. A. A. M. taking the form of the following resolution:

"Whereas this committee has been waited upon by a committee of gentlemen representing the city of Buffalo, with a view to securing the co-operation of this association in the promotion of a national show in Buffalo in October, which committee has presented arguments intended to demonstrate that such a show would prove beneficial to the manufacturers, be it

"Resolved, that in the opinion of this association the promotion of such a show would be inadvisable, for the reasons that it would entail the expenditure of a large sum of money without compensating advantages; that it would prove a disturbing element in a situation at present satisfactory to a large majority of the trade; that none of the reasons advanced by the gentlemen from Buffalo, or by any other persons, warrant a departure from the recent decision of this executive committee that any shows in addition to those already decided upon are advisable; and that such a show could not interest manufacturers to such an extent as to prove creditable to the trade or to the city of Buffalo."

New Ball from Philadelphia.

The Standard Roller Bearing Company, of Philadelphia, are just placing upon the market a special steel ball known as the "Standard Alloy" grade which are claimed to be much stronger and more durable than any that have previously been made; they are made of an alloy steel, tempered, and are produced by a special process. The balls are guaranteed true both in diameter and sphericity to .0001 inch and have a

harder surface than it is possible to secure with ordinary steel. When broken the fracture shows a soft velvet grain, very much finer than in regular crucible steel balls.

The crushing strength which they will stand shows clearly their value as compared with the regular crucible steel balls, these being the statistics compiled by the Standard Co.: A ½-inch ball of ordinary steel will crush under a pressure of about 25,000 pounds, while "Standard Alloy Balls" require 45,000 to 50,000 pounds. ⅝-inch balls usually crush at about 39,999. "Standard Alloy" at 95,000 to 100,000 pounds.

Remington Trustee Takes Appeal.

As was expected, L. N. Southworth, trustee in bankruptcy of the Remington Automobile Co., of Utica, N. Y., has filed an appeal from the decision of Judge Ray and the case will go to the United States Circuit Court of Appeals, Second Circuit. The appeal is from the ruling which exempted members of the Chamber of Commerce and other Uticans who made liberal subscriptions to the capital stock of the ill-fated company, the trustee having brought suits to compel these stockholders to pay \$100 on every share of stock held by them. The decision of Judge Ray, as was detailed in the Motor World, was in favor of this class of stockholders.

To Auction Vehicle Equipment Assets.

On Wednesday next, the 16th inst., there will take place the closing chapter in the history of the ill-fated Vehicle Equipment Co. Then its assets, which according to the schedule, hardly represent 10 per cent. of its liabilities of more than \$1,400,000 and which consist of a new factory building, 100x500 on 86 city lots, subject to a mortgage of \$105,000, machinery, tools and work in process, will be sold at public auction by Charles O. Dewey, as trustee in bankruptcy.

Spain Raises its Tariff Bars.

According to the new Spanish tariff which will go into effect July 1, automobiles will be taxed \$270 for two-seated cars and \$386 for those having over two seats. American lubricating oil, which heretofore has been discriminated against, will pay \$9.65 per 100 kilograms, or the same as all others.

Aerocar Adds Shock Absorber.

The Aerocar, the generous equipment of which has constituted not the least of its features, is to have the complement added to. Arrangements were this week effected to apply Truffault-Hartford suspensions to all Aerocar cars.

Ford \$500 Car Almost Ready.

It is now expected that deliveries of the Ford four-cylinder \$500 car, which have been long delayed, will commence on June 1st or earlier. Henry Ford was in New York on Monday last, and was very confident on this point.

FISK GAINS ITS POINT

Railways Sought Delay, but Fisk Insistence Brings Lower Rates to Western Territory.

Pressing their initial advantages, the Fisk Rubber Co., who have applied themselves to the task of obtaining lower freight rates on tires, finally has succeeded in breaking down the whole Western barrier. As a result of their efforts, they have just received word from the Western Classification Committee that their suggestions and urgings have been fully accepted and that a general lowering of rates to the West will shortly go into effect.

Mr. Lyman, traffic manager of the Fisk Rubber Company, has borne the brunt of the fight, and it is due to his insistence that the railroads did not adopt dilatory tactics. He appeared before the Western Classification Committee early in March and, although the railroad men tried to persuade him to permit the whole matter to go over until their July meeting, he stood firm and insisted on a mail vote. It is this mail vote that has just resulted favorably, and that will bring a reduction in rates and a consequent saving to all those who have to do with tires.

Throughout the entire fight, the Hartford Rubber Works Company loyally supported the Fisk People, their Mr. Kesser being present with Mr. Lyman at all of the conferences.

Licenses Again Discuss Tires.

At a meeting of the mechanical branch of the Association of Licensed Automobile Manufacturers, held on Friday last, the discussion turned upon tires, the sizes to be used for the front and rear wheels, for different weight of cars, and those best for cars of the same weight, but of different speed capabilities. Also the limiting point of the load for the proper tractive effect was discussed. A committee was appointed to report upon the feasibility of standardizing as far as possible the fastenings for different clincher tires for front and rear wheels.

Pennsylvania Opens More Branches.

The Pennsylvania Rubber Co., of Jeanette, Pa., has just established new branches in Chicago, located at 1241 Michigan avenue; Buffalo, corner Main and Tupper streets, and Atlanta, Ga., at 102 North Pryor street. This brings the number of Pennsylvania branches to six, the others being located in New York, Boston and Philadelphia.

Jones, of Georgia, may Assemble Cars.

Macon, Georgia, will have an automobile factory if the efforts of the Honorable Ben. L. Jones, of "Choctaw" fame, are rewarded with success. His plan is to buy the parts and assemble them in Macon.

FISK TIRES



SIMPLE **SAFE**

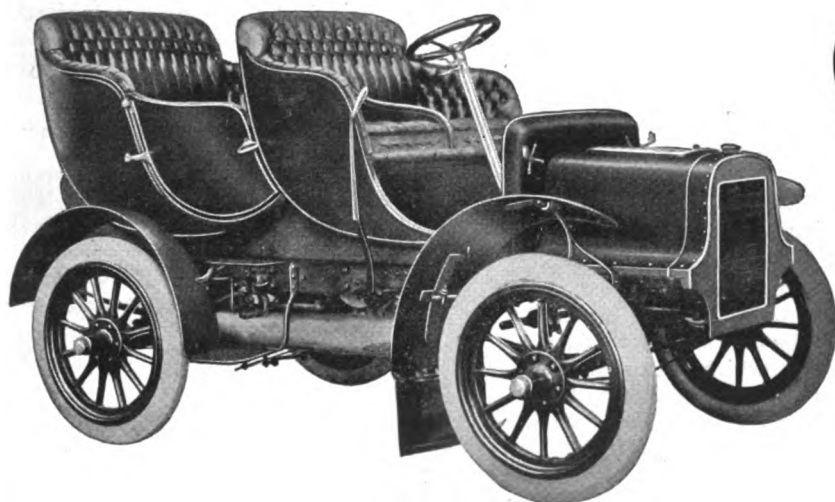
These tires are built particularly for those who wish to avoid all kinds of exasperating tire troubles,

WHO BELIEVE IN LIFE INSURANCE,

and who are desirous of economy in tire maintenance.

"AN EVER SATISFACTORY ARTICLE WITH NO DISAPPOINTMENTS."

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Simplicity Economy
Durability Interchangeability
and
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In no motor cars are these virtues so evenly blended and well balanced as in the Cadillac, the car behind which stands the largest automobile manufacturing organization in the world.

Every detail of the Cadillac has been brought to the highest state of perfection that genius and skill have been able to accomplish.

Cadillac drivers are enthusiasts because they get all there is in motoring—except the troubles.

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Members Association of Licensed Automobile Manufacturers.



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The Two Gallon Test.

That the question, How far can a car travel on two gallons of gasoline? was not conclusively answered by last Saturday's test, was shown a few days later when the cars that obtained first and second place in the official test were again run over the course under more favorable conditions and both exceeded their original showing. One thing that the test did demonstrate beyond a doubt was the fact that the time honored standard of "20 miles to the gallon" has become archaic in that a number of the competitors not only exceeded 40 miles on their allowance despite bad weather and heavy roads, but many of them topped the half century mark while the winners rolled up the amazing total of 87 miles. And even more remarkable was the performance of the very light cars.

From the point of view of the general user, actual distance covered is naturally the only factor of importance, but the results brought out by the test, even when figured by the arbitrary and unfortunate pseudo ton miles basis adopted by the

sponsors of the event, are indicative of great gains in efficiency. Regarding the former alone, particularly with relation to the cost of the fuel consumed and the ability of some of the cars in this respect are startling. For instance, more than 100 miles were covered by one of the buckboards at a cost of 50 cents, taking the current retail price of gasoline. This makes the cost per mile less than half a cent for fuel consumption alone, a figure that is again halved by the performance of the tri-car which did the same distance on a single gallon of fuel, and which was but very slightly increased by the winning car which covered 87 miles at a cost per mile of slightly less than .6 of a cent. How much of this has been brought about by improvements in the motor itself and how much in the transmission, it is, of course, impossible to estimate, but the figures would seem to reveal great advances in both respects.

The holding of such a test is further illustrative of the fact that automobile design has progressed to a point where the builder and user have the necessary time and inclination to consider small matters, for the question of gasoline consumption has hitherto been regarded as utterly trivial from the point of view of the pleasure car owner. The fact that the car would travel 10 or 15 miles more or less, on a gallon was immaterial, and undoubtedly much of the gasoline paid for by the motorist went into the pocket of the chauffeur instead of the tank of the machine. Gasoline was cheaper then, it is true, but an advance of a few cents a gallon would not greatly disturb the average motorist, other things being equal, and it is hardly likely that any strenuous attempt to reduce fuel consumption would be undertaken on this account alone.

But there is a phase of the matter that should not be overlooked, and this is, that even the best designed motor and accessories, equipped with the most efficient transmission that can be devised and mounted upon the easiest running gear that it is possible to build, will not run itself. Results are largely a matter of skillful handling and a good car may often be handicapped by an inexperienced driver whose knowledge is limited to avoiding obstructions in the road and handling the ignition and throttle levers when more speed is required. Taken all in all, it is apparent that the driver must unfortunately, always constitute the deciding factor in such a test and to what an extent this may be true may

best be realized from the order in which four cars of the same make, the majority of them of the same type, finished. This does not alter the fact, however, that the test accomplished what was its chief design—to show the possibilities of two gallons of fuel. And the possibilities were proven so great that even the industry was staggered.

Depreciation of Used Cars.

Depreciation has ever constituted the greatest bugbear of the would-be motorist who stopped to calculate the initial cost, maintenance and value at the end of a season, before investing in a car. And it is nothing strange that this purely dollars and cents view of the matter should be more than sufficient to discourage anyone who allowed his inclination toward entering the ranks to be swayed entirely by the apparently disproportionate return for the outlay. For it must be conceded that the prospect of having to dispose of a car at the end of a single season for 50 per cent. or less of its first cost, is not alluring. The cars of a few years ago actually depreciated in value that much in the majority of instances after several months running, but the same cannot be said of their more modern successors. Nevertheless, their market value when a year old is seldom if ever more than half of what it was when new, regardless of the actual amount of depreciation that the machine has undergone as the result of its season's use.

This is not an arbitrary figure by any means, for it is more often exceeded on the wrong side of the ledger than otherwise and the car that is but a year old brings less than half of its list price. It goes without saying, that improvement in motors, transmission and running gear and particularly in the increased sizes of tires fitted by the makers, have brought about a marked decrease in the percentage of depreciation suffered by the car, so that the purchaser of a modern type may rely upon its serving him well for at least three or four years. By this is meant actual depreciation, of course, for as already referred to, there appears to be slight connection between actual value as based upon the car's selling price, and the market value, or what it will bring if offered in the second-hand market. In consequence, the modern car that is good for several years' service, and which should still bring a fair proportion of its original cost at the end of that time, will seldom command more than

half of its list price should its owner wish to dispose of it any time after it ceases to be a model of the current year.

About once in so often, some writer with a bent for statistics will figure out an elaborate depreciation table showing exactly what cars of a certain price should drop in value, the first, second and third years of their existence, granted that they receive ordinary care. Needless to add, the figures thus brought to bear on the subject are seldom realized in actual practice; they generally fall far short of the facts and the motorist who congratulates himself that his car is worth a certain amount at any time he wishes to dispose of it, must go through a disillusioning process if his estimate be based on one of these tables. There is always a heavy demand for cars of reputable make at second hand, it is true, but unlike the market prices of new ones, the figures at which the old ones change hands are subject to violent fluctuation with each sale.

This state of affairs is exactly the same as obtains in the case of the purchase of any commodity, and the prospective motorist who limits it to the automobile, places the latter in a category which it does not deserve. Whether it be a motor car, a carriage, a piano or what not, if it has been used for a season or more, its market value will seldom be more than half of what was paid for it originally and usually not that much. For that reason these elaborately worked out depreciation tables are meaningless to the owner and worse than useless to the builder, for the figures represent an estimated drop in value that really exceeds the loss actually suffered in this respect by the machine, and falls far short of what its market value should be.

The Variance of Horse Powers.

In the various methods of testing employed by different makers would appear to lie an explanation of the startling differences in the horsepower rating of a number of motors, the dimensions of some of which approach each other so closely that they are practically identical while in others the variance of size is so small as to be negligible.

The practice of rating one motor as 12 horsepower while another of the same dimensions and designed to run under practically the same conditions, as regards speed, compression and other factors, is credited with 20 horsepower, has come to be so prevalent that manufacturers' horsepower ratings are no longer looked upon with any degree of awe. The fact that the

power of the engine is given in every instance as "brake horsepower" and not nominal or rated horsepower, and that the manufacturer is willing to make affidavit to the effect that his engine actually developed that power under a regular brake test, makes matters that much more confusing for the unsophisticated.

The manufacturer is not deliberately falsifying the figures, nor would his opinion of his own creations—a factor for which due allowance must be made—permit him in the majority of instances to inflate them to such an extent. Taken all in all, it is safe to say that where a maker's catalogue states that his motors have a certain rating under brake test, that they have actually done so and that his statement is a mere record of fact.

But it is one thing to have a motor show a tremendous amount of power, considering its dimensions, when tested under brake, and quite another matter for it to develop the same power under a continued efficiency test. From its very nature the duration of a brake test must be comparatively short; its length is measured by minutes and often by seconds and forcing a motor to develop an amount of power far beyond its normal output for such a short time presents no insuperable obstacles. Electric motors are now built that will stand an overload of fully 500 per cent. for a limited time—say 5 minutes, and it is nothing unusual for the well designed gasoline motor to reach a point almost 100 per cent. in excess of its rated power if tested for that purpose. But if coupled to a dynamo and run steadily for a period of several hours, in accordance with the usual practice of conducting efficiency tests, the readings would at no time show that any such wonderful amount of power was being developed. The motor that rose to 20 horsepower under the momentary brake test will find its level under the continued grind of the efficiency test and the latter will seldom fail to show why the maker following this method of testing has rated it at 12 horsepower. Both are correct and it is easy to see why they are misleading, though as a matter of fact, neither horsepower rating nor actual output have much to do with selling cars today—the latter must speak for themselves.

The Matter of Costs.

Probably nothing serves as a greater source of wonderment and continual annoyance to the average motorist than the wide discrepancy which exists between the the-

oretical cost of motoring and the corresponding figure which develops in actual practice.

On the other hand, according to certain high calculations which have been placed before him from time to time, he has been given to understand that, barring accident, the cost of motor transportation should be to him hardly greater than that by rail—less in some cases and greater in others, according to his location and the amount of service which he extracts from the machine—and that as compared to a similar service extracted from the horse, he should find the mechanical method greatly to his advantage. These ideals have been strengthened, perhaps, by the recorded results of certain tests which have been held occasionally, in which most flattering results have proved to all appearances that the machine is in reality a most economical contrivance after all. Hence, he very naturally arrives at the conclusion that either his own machine is at fault, or that he is in some way handling it amiss. As a matter of fact, probably the machine is all right, and the apparently poor showing which it makes is brought about by a combination of two causes. That is to say, the basis of comparison, be it by calculation, or by the result of any economy test, it is but a partial statement of the whole truth.

It is so very easy to ride in a motor car, the distance and time elements are consumed so greedily and the machine shows the effect of its labor so little that the actual amount of work which it is doing is hard to realize. Constant service with an animal would be cruel, were it even possible to achieve it without ruining the beast. Constant service from the machine, implies to the average mind, simply a strain upon the driver, and no thought to the possible effect upon the mechanism is permitted—it is merely a machine. In the same way, the extent and nature of the wear and tear is not appreciated, and the actual expenses of operation are allowed to mount up all unconsciously. As to the comparative data which have been collected from road competitions and tests, it is a well recognized fact that they fail to account for all the factors which combine to form the grand total of the cost. The elements of interest and depreciation are all neglected, and even the average of the maintenance allowance, is passed over. Hence, the values honestly obtained in themselves, are falsely applied to a summation, in which some of the very essential elements are neglected.

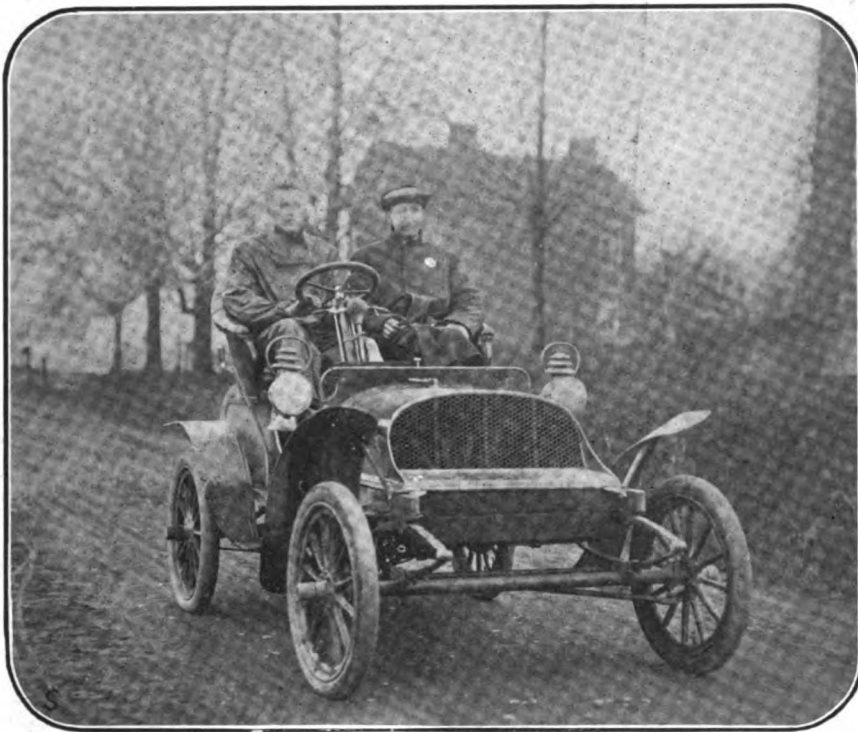
STAGGERED BELIEF

Two Gallon Test Upset all Preconceived Notions—Winner Covers 87 Miles and Does Better in Private Test.

Efficiency of the sort that staggered belief was the net result of the "Two Gallon Efficiency Test," conducted by the Automobile Club of America, on Saturday last, 5th inst. So remarkable was the performance of the leading cars that the promoting committee shared the doubts that arose and that caused the circulation of unpleasant rumors. To still these doubts and to quiet wagging tongues, the committee called on

which must have been operated all night, had its operator, F. M. Dampman, attempted to use a second gallon. The performance of the little cars is more remarkable in view of the heavy condition of the roads.

Figured according to the formula propounded by the Technical Committee of the Automobile Club of America, by which the product of the car and passengers' weight, plus 800 pounds, times the distance covered, represented its performance, with a handicap of 25 per cent. off for double cylinder and 30 per cent. for single cylinder cars, the 12 horsepower Franklin was an easy winner with a score of 200,100, with a



THE WINNER.

the prize winners to undergo a private test over the same route and under the strictest supervision. This private test more than corroborated the cars' official performances; it developed 95 miles which, with gasoline retailing at 25 cents per gallon, is at the rate of but slightly more than half a cent a mile.

As was to have been expected, the small cars left their heavier competitors far to the rear in the contest, but none anticipated the extraordinary showing made by the winning 12 horsepower Franklin, driven by "Deacon" Holmes, which finally came to a stop on the other side of New Haven after covering 87 miles, nor that of the 4 horsepower single cylinder Orient Buckboards, one of which, piloted by Guy M. Green, rolled up the amazing total of 101.6 miles, stopping a mile this side of Meriden, while the second was but 7 miles behind, and that of the Indian Tricar driven by Frank M. Dampman, which covered 99 miles on but one gallon of gasoline and

24 horsepower Frayer-Miller, driven by Dr. Butler, a close second. The latter covered 47.9 miles and rolled up a score of 194,953. A 20 horsepower Darracq, piloted by S. B. Stevens, was third, with 180,642, having covered 40.2 miles.

Immediately after the start, a number of protests to the effect that the gasoline emptied from the tanks of cars arriving at the starting point was being peddled to the competitors by small boys and that some of the entrants had taken advantage of this, were made to the committee and as a result the latter body was unable to announce any award after a prolonged meeting which was held Saturday night, when reports of the performances of the cars had been received. In order to satisfy themselves that the protests were unfounded, the committee decided to have the cars which made the best showing, go over the same course again, and this was done by the winning Franklin and Frayer-Miller entrants on Tuesday last. The outcome not

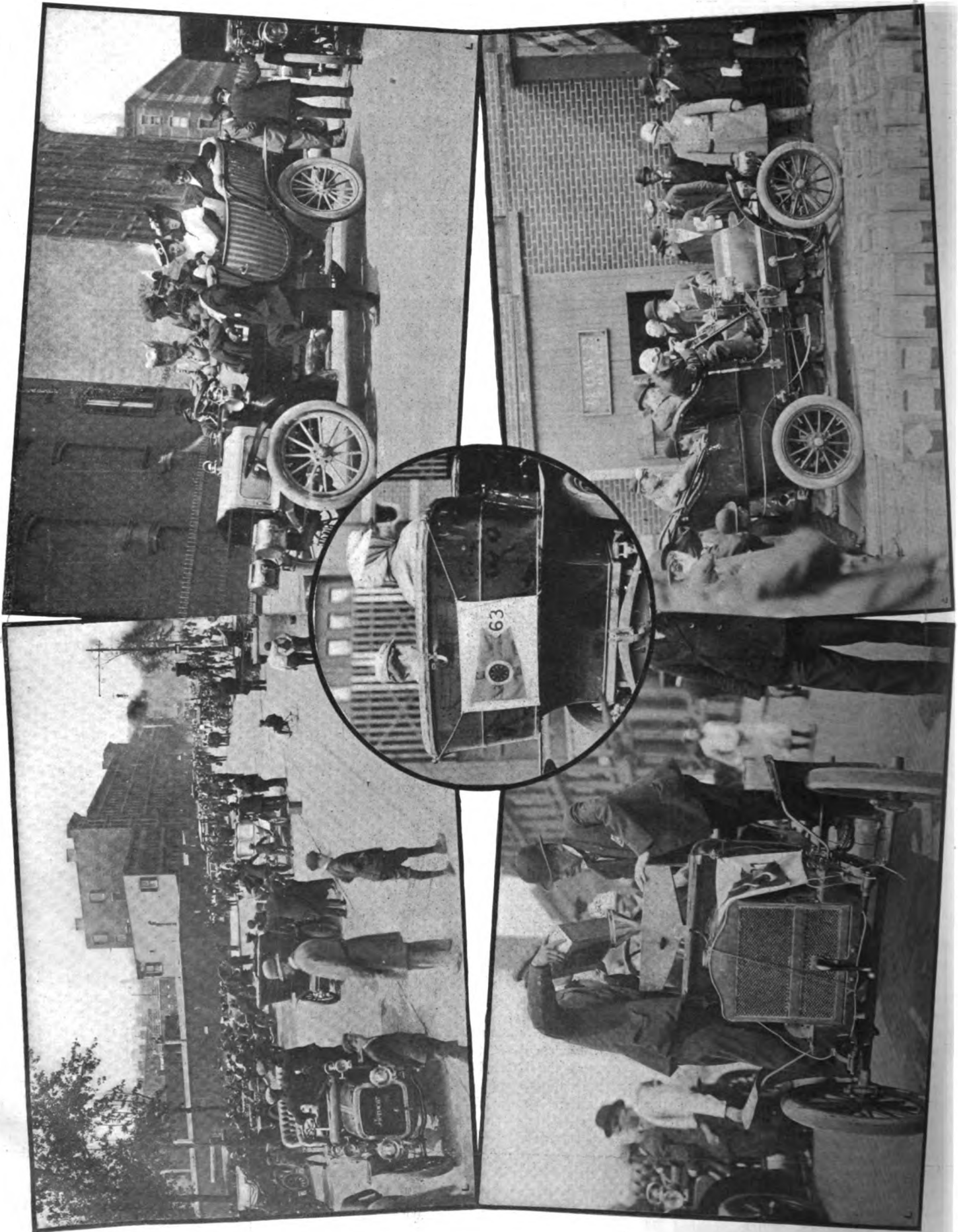
alone confirmed the result of the official performances, but showed conclusively that the cars had been handicapped previously by bad weather, as the Franklin covered 95 miles and the Frayer-Miller 59.8, although this, of course, will have no bearing on the official award.

Another interesting development of the week was the sending of a check for \$1,000 to Secretary Butler, of the A. C. A., by C. F. Wyckoff, president of the Decauville Automobile Co., which entered the Franklin cars, as a wager that the car could repeat Saturday's performance at any time. He also offered to return the trophy if the club would agree to hold another contest. The Decauville money was promptly covered by A. L. Kull, manager of the New York branch of the Wayne Motor Car Co., on the condition that the competing Franklin should be a regular stock car. Mr. Kull claimed that the winning car did not conform to these conditions.

Out of the total of 71 entries received up to Friday noon, no less than 65 entrants appeared ready for the start at 57th street and the East River at 12:30 Saturday, the hour having been advanced from 1 p. m. on this account. The significance of selecting a big brewery as the starting rendezvous was not apparent at first, but soon became so when the cars started to weigh in one at a time on the convenient platform scales. The first car to get away was the 10 horsepower Renault landaulet, driven by J. I. Harding, and the last was a 24 horsepower Packard touring car, with J. B. Herreshoff at the wheel. Owing to the great amount of time consumed by this process, as well as that for emptying the tanks of fuel and running the motor until it had exhausted what was left in the float feed chamber of the carburettor and then refilling with the official two gallons—which was supplied by the club in cans containing exactly that quantity—it was more than two hours later before the last car with its load of passengers left the brewery.

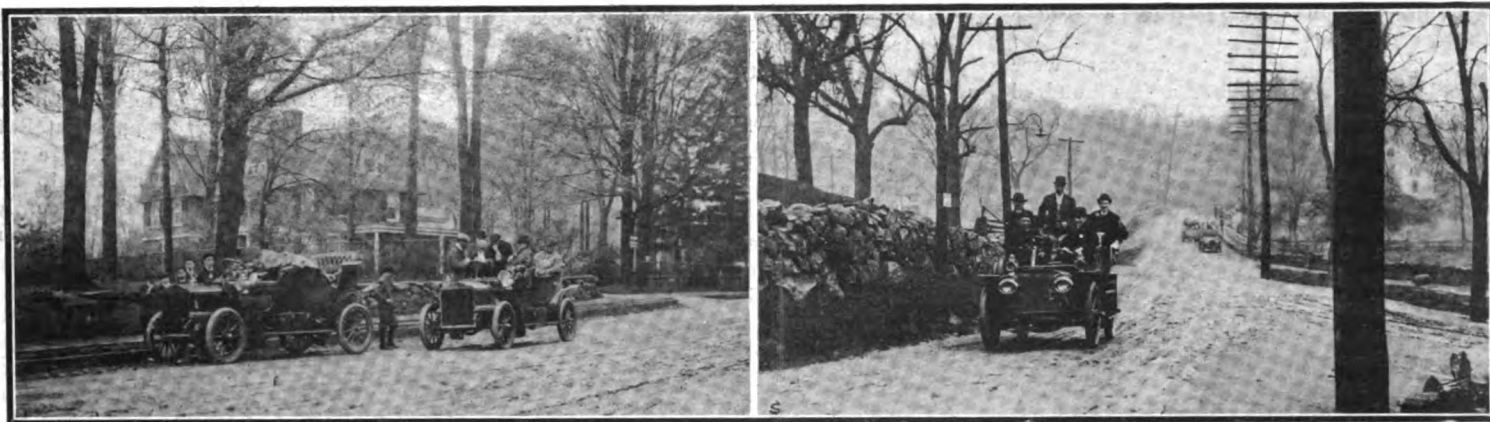
With that innate perversity that has characterized it ever since automobile tests have been held, the weather let loose by the time the leaders reached New Rochelle and not only drenched the drivers and their passengers, few of whom were sheltered by

SCENES INCIDENT TO THE A. C. A. EFFICIENCY TEST.



GENERAL VIEW AT THE STARTING POINT.
SQUEEZING OUT THE LAST DROP.

A CARLOAD OF INTERESTED SPECTATORS.
WEDDING IN THE CANNED GASOLINE IN FOREGROUND



THE CHECKER ARRIVES.

FAILING ON THE HILL.

hoods, but also made the going heavy, particularly for the lighter cars. This was the case especially between Larchmont and Stamford, where the roads were very muddy; the shower being local did not affect the roads beyond the latter point. A free hand was permitted in the arrangement of the gasoline tanks so as to permit every drop of the precious fluid to be utilized and advantage was taken of this in a number of instances to rig a temporary tank above the dashboard, which gave the cars in question a peculiar appearance. The route in the city, which lay up Fifth avenue to 110th street, to St. Nicholas and Seventh avenues to Central Bridge, happened to conflict with the route of the Road Drivers' parade which compelled some of the late comers to make a detour of a mile or more via the 145th street bridge.

It was anticipated that the running of the test would not occupy more than two or three hours and that all returns would be in early in the evening, but at 6 p. m. 20 machines, including the Indian tricar, had passed through Norwalk, 44 miles from the start, all going strongly. Some of the more weighty cars that did not get above the 20 mile limit before the motor "died," leaving their passengers out in the rain for some time before the official checking car arrived. Next to the winners, taking first, second and third places, came a 24 horsepower Berliet, driven by H. K. Burras, with

a score of 174,386, and the ponderous Mack 18 passenger brake, which, owing to its gross weight of 10,125 pounds, was less than 1,000 pounds behind in fifth place, although it completed but 19 miles. In sixth place came a 10 horsepower Cadillac driven by W. C. Martin, carrying four passengers and which made the very creditable showing of 56.5 miles, resulting in a score of 173,240; then came a Franklin four-cylinder runabout, that covered 58.4 miles, but dropped almost 2,000 points below owing to its light weight; a Stoddard-Dayton and a Queen touring car which broke practically even with 40.75 and 40.73 miles to their credit, although the score of the latter was close to 1,700 points less on account of the difference in weight. The holder of tenth place was a 40 horsepower Lozier touring car and provided a revelation as to what an American touring car of the heavy type can do by covering 30.28 miles. Its score was 160,181.

Including the Orient buckboards and the Indian tricar, which were eligible to compete for certificates of performance only, no less than nine of the competitors exceeded 50 miles, while 20 in all completed 40 miles or better. Apart from the winners or those that stood among the first ten, others that performed creditably in this respect were an Oldsmobile runabout with 57.5 miles to its credit; a Duryea three-cylinder car which did 53.12 miles, and a Cov-

ert 4½ horsepower runabout which covered 73.75 miles. The best performance below the half century mark were those of a Napier, 48.75 miles, a Cadillac runabout, 48.6 miles, an Oldsmobile of the same type with 45.5 miles, a Renault and a Franklin which tied at 45 miles, a third Franklin which did 44.05 miles and a Darracq at 43 miles.

A White steamer carrying the officials acted in the capacity of a checking and relief car, starting over the course immediately after the last car left the scales at East Fifty-seventh street. Its passengers found nothing to do until slightly more than 15 miles had been covered, a Mors touring car being the first derelict to be found by the wayside with but 15.72 miles to its credit. Another ten minutes brought to light the huge 18 passenger Mack brake which, owing to its tipping the scales at more than 5 tons, was well up to the front where its official rating was concerned, though its actual mileage was 17.13. Two miles further along a Bliss touring car had come to a halt with 19.01 miles to its credit and in the same mile was a Panhard with 19.53 miles. Once over the 20 mile mark stops became more frequent, as was to be expected. A Wayne was picked up at the 22d mile, a White steamer at 22.51, a Hotchkiss at 23.1 and another White at 23.81, the cars in some instances having come to a halt within plain view of one



LOOKING FOR THE LAST DROP.

WAITING FOR THE CHECKER.

another, and in others hardly a stone's throw apart.

In some places three to five cars were found struggling with but a few hundred yards separating them, so that between the 25th and 30th miles the checkers moved often but made short jumps. A second Franklin awaited them at 26.78 miles from the start and the second Darracq was just ahead of it at 26.81. The game of checking was an interesting one.

As the Technical Committee of the Automobile Club of America did not meet to consider the results until almost the end of the week, no official figures were forthcoming. The following, however, is an unofficial summary of the standing of all competitors who were reported at the end of the run, the work of the "college boy" observers who had been selected particularly for their impartiality leaving much to be desired where following instructions in reporting their cars were concerned:

Order.	Car.	H.P.	Cyl.	Entrant.	Pass.	Gross Wt.	Miles.	Score.
1	Franklin	12	4	Agents	2	2,300	87	200.100
2	Frayer-Miller	24	4	Dr. Butler	5	4,070	47.9	194,953
3	Darracq	20	4	S. B. Stevens	5	3,910	40.2	180,642
4	Berliet	24	4	H. K. Burras	5	4,460	39.1	174,386
5	Mack	50	4	A. F. Mack	19	10,125	17.13	173,441
6	Cadillac	10	1	W. C. Martin	4	2,375	56.5	173,240
7	Franklin	12	4	Agents	4	2,940	58.4	171,696
8	Stoddard-Dayton	30	4	D. W. Pardee	5	4,000	40.75	163,000
9	Queen	28	4	Agents	4	3,960	40.73	161,296
10	Lozier	40	4	Makers	6	5,290	30.28	160,181
11	Frayer-Miller	24	4	Makers	5	4,200	38	159,600
12	Renault	14	4	J. B. Trevor	5	4,200	36.61	153,762
13	Compound	16	3	Makers	5	3,410	45	153,450
14	Darracq	32	4	Agents	4	4,400	34.62	152,328
15	Compound	16	3	Makers	4	3,435	43.5	149,422
16	Renault	10	4	J. H. Harding	4	4,040	36.83	148,793
17	Packard	24	4	A. W. Chamberlin	6	4,910	30.25	148,527
18	Napier	18	4	Agents	2	3,020	48.75	147,225
19	Aerocar	24	4	Percy Owen	5	4,050	33.8	145,890
20	American Mercedes	45	4	C. M. Bouggy	7	5,240	27.78	145,567
21	Frayer-Miller	36	6	Agents	7	4,855	29.4	142,737
22	Packard	24	4	J. B. Herreshoff	5	4,600	30.54	142,316
23	Packard	24	4	A. R. Shattuck	4	4,380	32.49	142,306
24	Franklin	20	4	R. G. Howell	5	3,520	39.82	140,166
25	La Comete	30	4	W. H. Barnard	6	5,340	26	138,840
26	Locomobile	35	4	A. B. Hilton	6	5,440	25.32	137,741
27	Duryea	15	3	Makers	4	2,020	53.12	135,114
28	S. & M. Simplex	30	4	D. H. Morris	5	4,700	28.64	134,608
29	Franklin	12	4	R. G. Morris	4	2,970	45	133,680
30	Franklin	12	4	F. E. Spooner	4	3,020	44.05	133,031
31	Franklin	30	6	Agents	5	4,030	31.84	128,315
32	Martini	40	4	Agents	4	4,770	26.78	127,741
33	Fiat	20	4	Agents	3	4,140	30.43	125,930
34	Compound	16	3	Agents	4	3,160	39.51	124,852
35	Covert	6½	1	C. D. VanSchaick	2	1,654	73.75	121,982
36	Rochet-Schneider	35	4	C. M. Jacobs	4	4,800	25.34	121,632
37	Renault	14	4	Hugh J. Grant	4	3,980	30.55	121,589
38	Mercedes	40	4	Irving Brokaw	3	4,210	28.63	120,532
39	Columbia	40	4	C. E. Knoblaueh	5	5,020	24	120,480
40	Elmore	35	4	Dr. E. Steese	5	4,180	28.2	117,876
41	Darracq	35	4	C. T. Adams	3	4,360	26.81	116,981
42	Oldsmobile	7	1	J. K. Mills	2	1,962	57.5	112,815
43	Winton	20	4	J. P. Channing	5	3,880	28	110,580
44	Hotchkiss	35	4	Agents	5	4,700	23.1	108,570
45	White (steam)	18	2	Agents	5	4,180	25.94	108,429
46	Maxwell	16	2	Makers	5	2,780	36	100,080
47	Cadillac	10	1	L. R. Burne	2	2,046	48.6	99,436
48	Columbia	24	4	C. D. Alton, Jr.	4	3,720	26.28	97,761
49	White (steam)	18	2	Carl Page	4	4,025	23.01	94,627
50	S. & M. Simplex	30	4	J. S. Bunting	2	3,910	24.13	94,348
51	Bliss	40	4	F. C. Armstrong	5	4,940	19.01	93,909
52	White (steam)	15	2	A. A. Post	4	4,170	23.51	93,867
53	Wayne	24	4	A. L. Kull	5	3,800	22	85,600
54	Mors	40	4	J. J. Astor	5	5,290	15.72	83,159
55	Oldsmobile	4	1	L. B. Farmer	2	1,731	45.5	78,760
56	Panhard	12	4	Am'n Generator	4	3,990	19.53	77,925
57	Northern	18	2	J. H. Hammond	3	2,870	25.87	74,246
58	Buick	22	2	H. J. Koehler	2	2,510	28.77	72,212

Western Clubs Choose Officers.

These officers have been elected by the Duluth (Minn.) Automobile Club: President, A. E. McManus; vice-president, L. R. Martin; secretary, D. A. Willard; treasurer, Victor Huot; trustee, C. A. Brewer.

The Freeport (Ill.) Automobile Association has been formed for the purpose of holding race meets at Taylor's Park. The officers chosen were: President, Fred J. Jastram; secretary, George Coon, and treasurer, J. B. Taylor.

Tacoma to Build Clubhouse.

Although it is very young, the Automobile Club of Washington is proving itself an energetic organization. A club house will be built on the property in Brightwood avenue, near Tacoma Park, and it is expected it will be ready for occupancy before July 1. The club now has over 150 members.

No Evidence, but Guilty, Anyway.

As an example of how justice is dealt out to automobile men in the country districts, the experience of Harry Tate, a tester for the E. R. Thomas Motor Company at Buffalo, N. Y., serves a good purpose. He was running through Kenmore, a Buffalo suburb, at slow speed, one morning recently, when he was stopped by the village constable and arrested on charge of speeding. He was informed that he had gone through the opposite side of the town at the rate of forty miles an hour before. At the trial, none of the four witnesses were able to say that Tate was the man who was doing the speeding. Nevertheless, he was fined \$5.

Later a court official explained the whole matter by saying:

"We held a meeting last night and decided that this speeding must stop. This man was the first to come along slow enough for us to catch so we arrested him."

Red Confetti as a Danger Signal.

In England, where the activity of the police in establishing traps for unwary motorists has given such a deal of trouble to those gentry, and has resulted so beneficially to the municipal treasuries that Punch has been moved to characterize them as "Copper Mines," someone has discovered an antidote. The method, which is in the nature of a self-regulator, consists in strewing red confetti on each side of a spot which is guarded by the officers. As tried in various localities, it has been found to work to perfection. The officers cannot pick it up, and the motorists never fail to see it and take warning, and it begins to look as though barring special legislation to prevent its use, these same "mines" will soon be forced to suspend operations.

Every Farmer a Detective.

The Farmers' Protective Association of Harrison township, Ohio, has just concluded a series of meetings with the end in view of bringing automobile scorchers who penetrate their territory, down to slower speed. Every member of the association, which embraces between seventy-five and one hundred farmers, has constituted himself a detective to enforce the laws of traffic and bring all violators to justice. All prosecutions will be reported by the association, in its entirety. The sincerity of the movement is emphasized by a fund created for the purpose of prosecuting the rebellion against the speed enthusiasts.

Germany "Goes the Limit."

Teutonic paternalism is apparent in the measure recently introduced before the German Reichstag, providing that automobilists found guilty of permanently injuring or killing persons on the highways, be compelled to pay a life annuity to those dependent upon the person injured; the amounts are to be assessed by the courts and the owner of the machine to be held responsible in every case.

OLDFIELD LOSES \$500

**But he Beats Barnstormer Albert and then
—O Joy!—is Beaten by a Native.**

Although Barney Oldfield failed to win the purse of \$500 which A. B. Wharton, a local enthusiast had promised him if he broke the track record at the Fort Worth automobile race meet, on Friday, 27th ult., he nevertheless gave the Texans a good exhibition of fast driving. Oldfield is popular in Texas, and the papers of the cattle State refer to him as the "millionaire automobile racing enthusiast." It is a well established fact that the Green Dragon driver has made money in the last three years, but a million—it sounds nice and anyway, if a person has \$10,000 he is considered a "millionaire" in the South.

The meet was held on the Fort Worth Driving Club's track, a half mile circuit. To win Wharton's \$500, Oldfield set out to beat the record of 1:14½, but the best he could do was 1:17. The three mile match race between Oldfield and Paul Albert was won by Oldfield by three lengths. Albert, in his stripped car, got off better than his opponent and held the lead for two miles. At the two and one-half pole the cars were neck and neck and in the last stretch Oldfield won out by a few lengths. The time was 4:31½. It was a thrilling race—at least the Texans thought so, which answers the purpose—and the green-coated driver was given quite an ovation.

Oldfield then went two miles against time. The officials gave out 2:35¼, which was gravely announced as "a world's track record for a half-mile track." A. B. Wharton, the man who wanted to throw his money around indiscriminately, defeated Oldfield in a two mile match race. According to the terms of the contract, the champion will have to spend some of his easily earned money to buy Mr. Wharton a sterling silver trophy. Wharton drove a Franklin runabout and Oldfield a Peerless touring car, the latter giving the Texan a quarter of a mile start. Wharton held the advantage until the cars came down the stretch for two and one-half miles. Oldfield then tried to crowd Wharton from the pole but the later headed him off and won by a bonnet. The time was not announced and even if it had been the crowd would not have heard it, they made such an unearthly din cheering the local favorite. Paul Albert drove two miles against time, the first being covered in 1:21½ and the second in 1:24¼, a total of 2:46.

The races in which the local machines cavorted were interesting. The two and one-half miles for single cylinder cars was won by W. R. Edrington, who piloted a Cadillac, J. E. Redeker, also driving a Cadillac crossing the tape second. Time, 6:14¼. W. G. Burton, Olds, finished first in the event for two-cylinder cars at the

same distance. His time was 5:05. T. J. Boaz (Ford) was second and A. B. Wharton (Franklin) third. A three mile start and stop novelty race amused the crowd. It was won by a local driver named Bomar, Wharton finishing second and Jesse Illingsworth, third. It was not quite so amusing as the "city ordinance race," however. This was won by a car belonging to Bomar, which covered the half-mile in 4:16. The city ordinance requires that cars shall not travel at a speed greater than seven miles an hour and the cars in the race endeavored to keep within this limit. The cars crawled along like sick turtles which caused Chief of Police Maddox, who refereed this event, to remark that if cars traveled as such slow speed in the city he would feel like taking the drivers into custody for making Fort Worth appear as a "slow town."

The attendance numbered about 2,000 and the gate receipts were unusually large as it had been advertised that the balance, after paying Oldfield's expenses, of course, would be turned into the San Francisco relief fund. It was suggested, however, that the money be sent to Bellevue, Texas, where a recent cyclone did so much damage.

Income from the New Jersey Law.

New Jersey's new automobile law will undoubtedly prove one of the best revenue raisers—at the expense of automobilists—ever enacted in the State, and it is estimated that the net profits from the act for this year will be nearly \$65,000. In annual fees about \$50,000 will be taken in from licenses and \$25,000 more from the State motorists who will be registered. Taking from this \$75,000 the \$10,000 appropriated by the legislature for expenses, the snug balance of about \$64,500 in profits will be left. All money collected for licenses is to be used for road improvement, except \$3,000, which is to be expended for the erection of guide posts and warning signs. The \$10,500 appropriated by the legislature this year for expenses will be appropriated as follows: Commissioner, \$1,500; chief inspector, \$1,500; seven deputy inspectors, \$2,000; clerical services, \$3,500; postage, \$1,000, and stationery, \$1,000.

Scorching Doctor Receives Reprimand.

The Rochester (N. Y.) Automobile Club is evidently starting out to bear down hard on its members who have a proclivity for scorching. Several days ago, Dr. A. V. Hart, a member of the club, drove his Thomas Flyer from Buffalo to Rochester in 1:32:45, just 9¼ minutes more than it takes the Empire State Express to make the run. Dr. Hart was summoned before the board having such matters in hand. The evidence was conclusive since affidavits had been made to it by Edward W. Mills and Charles F. Brooks, sporting editors of Buffalo papers, who kept the time; but as this was the doctor's first experience as a defendant on such a charge, he was let off with a reprimand.

NASHVILLE IS "PUT WISE"

**"City Dads" Learn that Cyclometers do not
Register Speed and Amend their Law.**

Somebody should direct the efforts of the Carnegie Hero Fund Commission, or some other society of similar endeavor, to Nashville, Tenn., for there there lives a man who saved the would-be automobile legislators of the council of that city from disgrace. He was sufficiently brave enough to appear before that body and tell them just how absurd their intentions were. His name is W. L. Granberry. Mr. Granberry was backed up by Thomas J. Tyne and they carried along Dr. S. E. Cox to assist in the fray should his services be required.

Nashville's city council made its bid for fame and unpopularity by introducing the ludicrous ordinance which required "that every automobile, motor car, bicycle or other vehicle propelled by steam, gasoline or electricity, except street railway cars, which is driven within the corporate limits, shall be equipped with a cyclometer or device whereby its speed will be shown when a police officer shall stop the same to ascertain such speed."

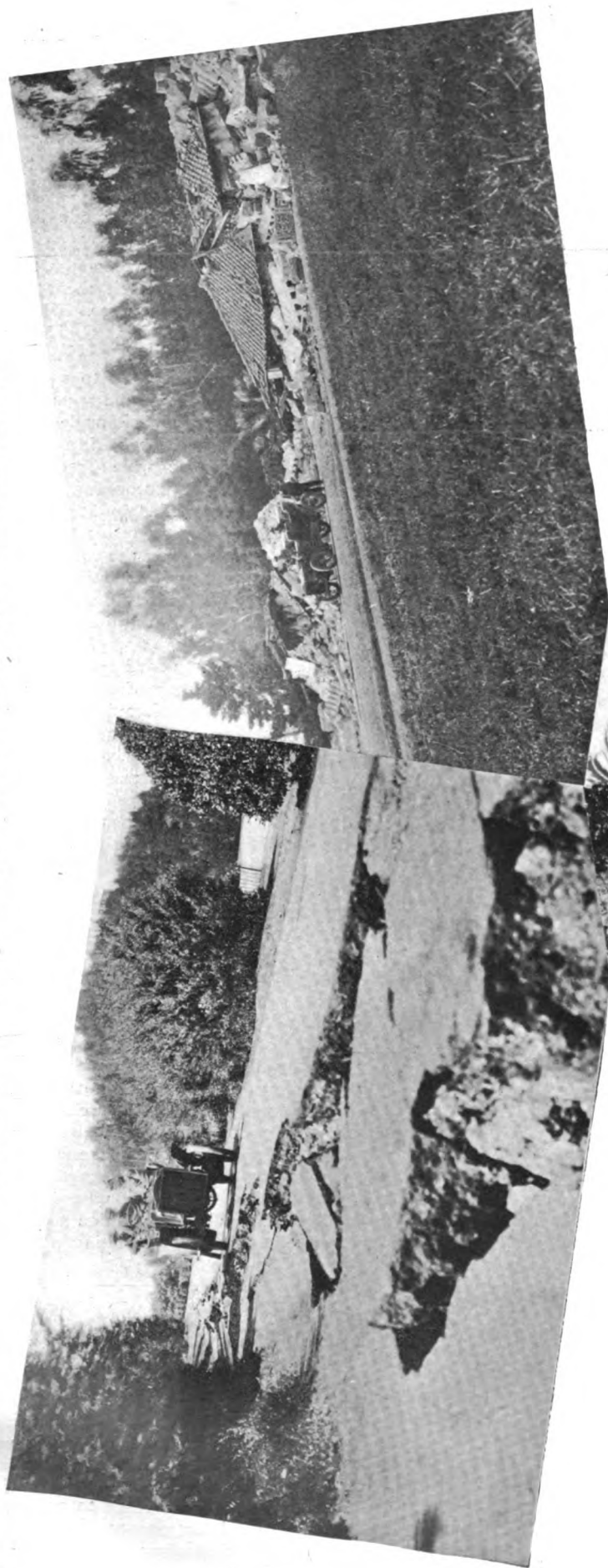
The gentlemen named met the Improvement and Expenditure Committee, to which the bill had been referred, in Mayor Morris's office last week, and convinced the committee that a cyclometer was not a device to register speed, and that if every car was equipped with a speedometer the speed of an automobile would be shown only when the car was actually moving and that officers who thought cars were going at a rate faster than allowed could not climb aboard cars while they were moving to ascertain such speed.

Councilman Marlin acknowledged the sensibleness of these remarks and submitted an amendment providing that no motor car shall turn from one street into another or cross any street in the city when driven or propelled at a rate of speed in excess of eight miles an hour. To this Mr. Granberry suggested be added a clause prohibiting the operation of automobiles or motor cars at any other place in the city at a dangerous or reckless rate of speed. The committee decided to recommend that this amendment with the addition suggested by the spokesman of the visiting trio, be substituted and passed.

Booming Good Roads in Georgia.

The first "good roads automobile caravan" ever organized in Georgia left Savannah Tuesday morning of last week to pay visits to towns in Severn and Effingham counties. The visitors were carried by seven touring cars and it is their purpose to stir up agitation on the good roads question, and to have the counties adjoining Chatham build good roads to connect with those of the latter county. Jenkins county is in favor of building good roads and the automobilists will do missionary work in other important counties in the State.

TOURING IN THE CALIFORNIA EARTHQUAKE DISTRICT.



EARTHQUAKED ROAD IN SAN JOSE
REFUGEE'S TENT IN SAN JOSE PARK

WRECKED ENTRANCE TO IRLAND STANFORD UNIVERSITY.
ST. AUGUSTINE'S INLAND ASYLUM, WHERE 100 VICTIMS PERISHED.

TIMING THE IGNITION

When the Spark Affords Most Power— Evils of Incorrect Timing.

Although custom decrees certain set rules for the guidance of the driver in handling his engine on the road and at other times, it is more than likely that few of even the most experienced and skilled operators comprehend to the full all that underlies those rules, or knows just why it is that for instance, the spark lever must be advanced at certain times and retarded at others while running, and this, despite a fairly accurate knowledge of the working of the cycle. The obvious reason for this lies in the fact that a complete technical understanding of the gas engine in its innermost workings, requires a depth of study which it is given only to the specialist to undertake. Yet for even the most casual user, a more thorough knowledge of the all-important matter of ignition in its relation to the time of the explosion, is quite essential to successful operation, and is by no means difficult in itself.

In the first place it is to be understood that explosion, in the ordinary acceptance of the term as here applied, refers not to an instantaneous ignition of the compressed gasses in the cylinder, but to a rapid combustion, which because of its rapidity, is commonly referred to as an explosion in rather a loose way. That is to say, instead of the gasses becoming ignited at the instant of the administration of the spark, they take fire gradually, the maximum pressure being attained when they are completely on fire and before the loss of heat through expansion or radiation shall have diminished the consequent tension. As a matter of fact, it may be considered that the particles of gas nearest the spark take fire first, and communicate the flame to those nearest them, they, in turn, igniting others, until the whole charge is on fire, the process occupying but an instant of time, yet one which is well within the limits of measurement.

It is perfectly obvious, this being the case, that the relative distance between the particles at this time must govern the rate of flame propagation, or, in other words, if they are crowded closely together, the spread of the flame must be more rapid than if they are loosely arranged. And, of course, the method of molecular arrangement depends upon the tension of the gas, or in plain words, upon its degree of compression.

This theory is borne out in actual practice, to the extent that the law has been firmly established that the maximum pressure attained is dependent solely upon the initial compression, for any given condition of mixture and strength of spark. In practice, however, certain extraneous conditions, among them being the amount of outside work required to secure compression, places a limit to the amount which it is advisable

to employ in any given motor, and hence, the matter of cylinder design in relation to this factor is restricted by certain laws known to the designer. But as it is a fixed quantity for any motor which is in theoretically perfect condition, it need have no thought from the user.

What does interest him more vitally than he is apt to know, however, is the time when the ignition takes place—a matter which introduces the element of the time required for the completion of the inflammation of the cylinder contents. This time, which is ordinarily reckoned as from the beginning of the formation of the spark, rather than from the real point of ignition, is in all motors variable, and its action is relegated to the care of the driver. The reason for this depends upon the fact that although the time required for igniting the entire charge is comparatively slight—but the smallest fraction of a second, in fact—the piston is travelling at a rapid rate, and hence, unless the point of actual ignition, in distinction from that of sparking, be at or near the beginning of the stroke, the full effect of the explosion is lost. The nature and degree of this loss is dependent on a two-fold consideration, but a single factor of which is commonly taken into account.

In the first place, if the time of actual ignition be at some point part way down the working stroke of the piston, it is evident that the full effect of the resulting pressure will be lost, because the exhaust valve will open before complete combustion has taken place. Or, to state it differently, instead of the power behind the piston being exerted during the entire working stroke, it will lag somewhat, and the maximum thrust will not occur at its commencement, as it should in theory. But in addition to this loss through the lag of the combustion, there will also be a diminution in the actual pressure attained, due to the fact that as the piston travels downward it increases the volume behind it, thereby lowering the compression of the gas, and reducing at once the possible rate of ignition and the maximum effect produced at the same time. Thus, whatever may be the loss due simply to lag, its augmentation on account of the loss of initial compression must be considerable, and dependent on the amount of piston travel which has already taken place.

On this account, the time of sparking is in practice adjusted in such a way as to produce the maximum pressure at the earliest possible point, and in high speed motors, it is common to carry on the functions of compression and initial sparking at one and the same time for a part of the stroke. That is to say, the spark is produced before the piston has reached the top of its compression stroke in order that the ignition may be fully completed by the time it is ready to descend. But since, in any motor, the maximum compression is determined by the designer and remains practically constant throughout its period of

active service, the time required to ignite the charge is also fixed for any given critical mixture of gas. And as it is required to vary the speed of the crankshaft, it becomes further evident that the period of expansion, or the duration of the working stroke must vary. Hence, to obviate the difficulty of reconciling a variable period of ignition with a constant requirement for it, the point at which the spark commences to take place is varied in accordance with the speed, being advanced as the speed increases and regulated to yield the maximum of power at the flywheel.

Thus, by way of illustration, suppose a motor to be run at 500, 750, 1,000, and 1,250 revolutions per minute, respectively, at different times. Then the duration of the working strokes will be, in order, .06, .04, .03, and 0.24 seconds. Recent experiments conducted with coal gas, which probably has a slightly lower rate of combustion than gasoline vapor, show that with 45 pounds compression, approximately .04 seconds are required to secure the maximum pressure. Hence, in this case, it is obvious that were ignition to commence at the dead point of piston travel, the maximum pressure would not be attained until the end of the stroke, when running at 750 revolutions per minute, or an instant after the exhaust valve had been thrown open. Also, at 1,000 revolutions per minute, even though the spark were given at the commencement of the compression stroke, the ignition would not be complete until the piston had travelled nearly one third of its working stroke. But in practice, greater compressions are commonly used, and also it is probable that the gasoline mixture ignites more readily and hence gives a considerable earlier maximum than is here indicated. The necessity of varying the point of sparking is, however, well brought out.

The thing to be desired in the operation of any motor, at no matter what speed, is then, to so time the point of sparking that the maximum pressure shall be attained at the earliest possible moment in the cycle after the piston has passed its dead point. That the variation of this function should be entirely independent of the throttle position, is perfectly obvious from a moment's consideration of the fact that while the open throttle is primarily intended for high speeds only, it is fully as often used when running up hills and through bad stretches of road, when, of course, the piston speed is necessarily reduced by the great load. Hence, any arrangement in which a joint regulation of both throttle and spark levers at the time time for all conditions is attempted, is evidently impracticable, the only correct arrangement of the two being one in which they are entirely independent of one another.

As to the proper method of manipulation, its determination is more a matter of experience than one of ruling. But in general, it may be said that the variation of the spark follows the speed of the motor pretty closely, increasing in approximate

proportion to it. The exact point at which the best results are obtained can readily be determined from the behavior of the motor by a little practice, the result of late ignition being manifested by a lack of vigor in the explosions, while too early sparking is signified by a knocking in the cylinder, and by a jerky propulsive effort which is unmistakable. This latter evil is more easily detected than the former, and hence, it is customary to advance the lever as far as may be necessary without reducing the speed or causing the well known knock. Simple as the matter of correct adjustment is in theory, however, it requires constant attention from the driver when on the road to maintain it at the proper point, and quite as much depends upon its successful attainment, as does upon the otherwise simple knack of driving in itself.

Neglect of the Differential.

Probably no portion of the mechanism of the modern motor car comes in for less thought on the part of the driver than the differential and probably none serves its purpose with less of complaint and less of attention. Yet its duty is all-important, and the fact that its component parts are comparatively small, yet are made at times to carry a considerable portion of the driving load, implies that the strain upon it must be terrific. Under no other conditions, would such small gears be called upon to carry a load at the high rotative speeds which are imposed upon the differential pinions, and seldom if at all, would other equally important parts be allowed to go for as long a time as these frequently do without attention.

The average differential, placed in an inconspicuous place, self-contained and uncomplaining, is allowed to run uncared for, while the motor and the other organs of transmission are watched and tended with frequent solicitude, and never permitted to become seriously deranged without getting their share of attention. The care which this bit of mechanism demands, is comparatively slight, to be sure, yet its duty is such that it cannot well be neglected. A dose of oil or grease now and then, with a cleaning out of all sediment and deposit at stated intervals requires but little time and labor and is well repaid in the end.

Resin for Improving Babbitt.

A small piece of resin stirred into melted babbitt serves to improve the pouring qualities of even a poor grade of metal, and also improves its grain to a certain extent. Babbitt metal which is heated only to a sufficient degree to light a pine splinter when mixed with a bit of resin will run into places where otherwise it would refuse to go. By some workmen, it is also claimed that the resin serves to prevent blow holes when damp boxes are being run. Poured bearings are used but little on the automobile, but when the occasion for new ones arises, the mechanic will find it to his advantage to remember this tip.

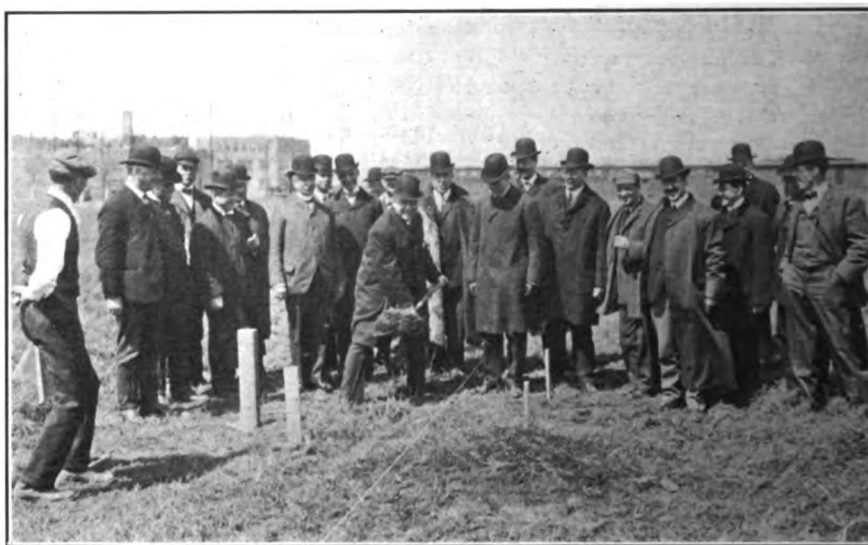
PIERCE'S NEW PLANT BEGUN

Coochee-Coochee once was Danced on Site
—To be Built in 95 Days.

An event of more than passing importance occurred last week when the George N. Pierce Co., of Buffalo, N. Y., broke ground for a new factory that is designed to properly house that sterling concern which is one of the pillars of the automobile industry. The event, carrying its significance with it, brings in its train a story of progress, for the new factory is a monu-

two stories, surmounted by a central dome. This is to be known as the "Good Will" building.

The ceremony of turning the first spadeful of earth was simplicity itself, the act being performed, of course, by the ever-youthful, though white-haired, president, George N. Pierce, surrounded by his associates and a few invited guests. A mighty big spadeful it was, too, that Mr. Pierce vigorously turned and threw a goodly distance from him, while a couple of cameras caught what ought to be an historic act. On someone suggesting that a few words be appropriate, Mr. Pierce, with instant re-



PRESIDENT PIERCE TURNING THE FIRST SPADEFUL OF EARTH.

ment to the kind of progress one likes to know exists, and which in the fullness of time reaps its own reward.

The site comprises sixteen acres, being that part of the Pan-American Exposition grounds in which was located the famous "Midway" of the exposition. The property extends for one thousand feet along the belt line tracks of the New York Central R. R., and has a frontage of 900 feet on Elmwood avenue. It is within striking distance of five railroad lines, and in a rapidly growing manufacturing quarter of the city. The ground is level, well-drained, and everything considered, an almost ideal site.

The plant itself is to be of reinforced concrete construction, most modern in every respect, and not the least astonishing thing about it is that the contracts call for its completion in just 95 days.

There are to be three main buildings, or rather two, with the third a series of buildings in itself. The machinery and manufacturing building will be one story in height, 210x400 feet. The assembling building will also be one-story, 400x120. The third great building or group of buildings, will be the body-making plant, two stories in height and 355x60 feet. All will be of "saw-tooth roof" construction, ensuring light in every part. In addition there is to be a big office building, 250x60 feet, of

sponse, thanked the little group for their presence, and with the directness so characteristic of him, thanked the contractors for their promptness and courtesy to date, adding, with ominous emphasis, that he would keep on thanking them for just 95 days.

The half dozen or more Arrow cars that were in waiting then carried the party to the Park Club, where they were the guests for lunch, the honors being gracefully done by Mr. Pierce and Col. Charles Clifton and their associates.

Packard to Enlarge Again.

Two large factory buildings to cost \$90,000 and an increase of 500 employees over the present working force, are immediate plans of the Packard Motor Car Co. in the automobile progress of Detroit.

The new buildings will be erected at Concord avenue and the Boulevard, in connection with the company's already large plant. The present buildings are in the form of a hollow square. The new structures will be built on the same ground plan, but will surround the present structures. Both will be two stories high and one will be 480 feet long by 63 feet wide. The other will be 248 feet in length, with a width of 63 feet. The structures will be entirely fireproof, of concrete construction.

LOZIER'S NEW "SIXTY."

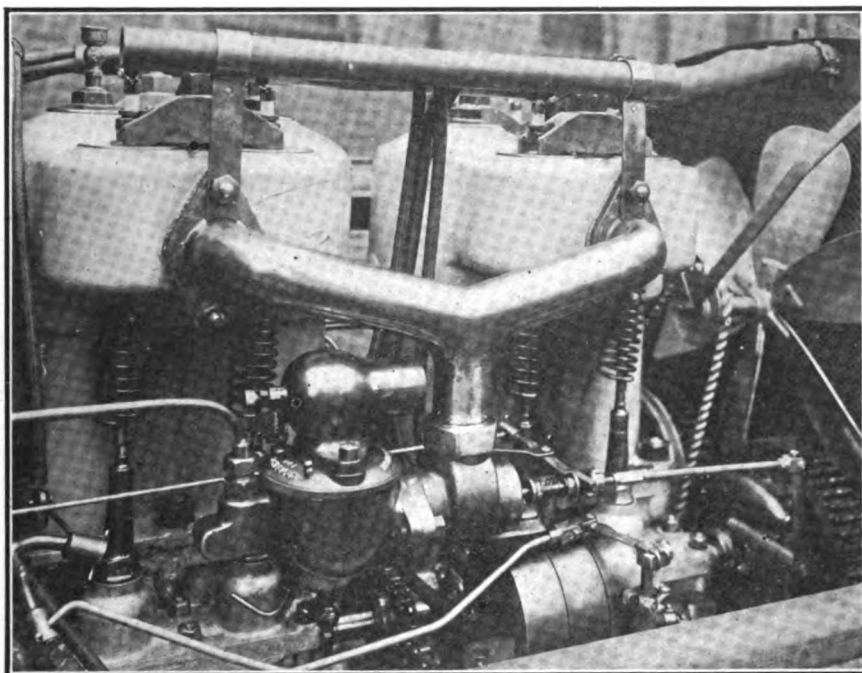
Impressive Addition to the Line—Bristles with American Ingenuity.

"All American" is probably the most fitting appellation that may be accorded the new Lozier "sixty," a private view of which was given a Motor World man at the Stamford factory this week, for, like its compeer the 40 horsepower car of the same make, it

speedy look for its rating. In making this step forward the designer of the Lozier cars has taken heed of the cry for reduced tire maintenance and has established a precedent where the heavy car is concerned—in fact, 36 inch wheels have been employed in but one or two isolated instances previously.

The frame upon which the chassis of the 60 horsepower car is built is of unusually deep section—5 inches by 5/32, of the usual channel construction tapering forward

also applies to the arched front axle as it is a drop hammer forging without a weld, but is of nickel steel as are also the valves. The same material is employed for the main and lay shafts of the transmission. Accessibility stands out pre-eminently as the aim of the designer in the manner of placing the camshafts which are covered with removable

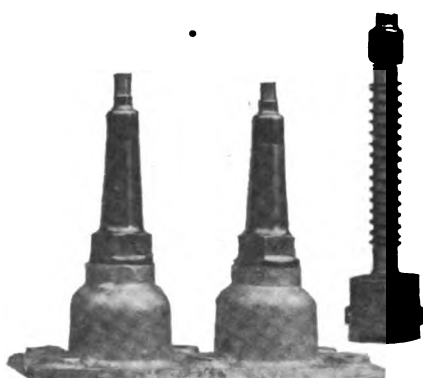


LOZIER 60 H. P. MOTOR.

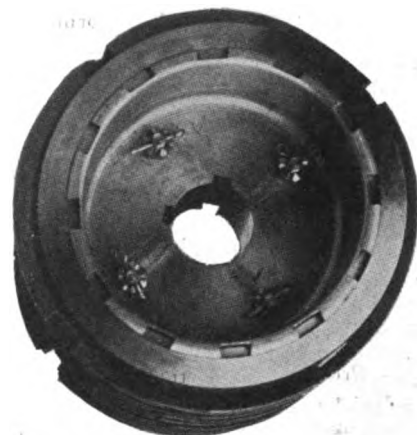
forms an excellent example of the ability of the home designer to meet prevailing conditions in a manner that is distinctively American. This is apparent in numerous details, one of the most noticeable being the provision of a 30 gallon, pressure-fed tank that still permits a clearance of fully 12 inches without interfering in any way with the body—something that has bothered more than one foreign designer, as witness the stone-punctured gasoline tanks of two of the foreign-built cars in the recent endurance run to Boston. Another small thing—so small in itself that it bears striking evidence of the infinite pains that have been lavished on the design of the car, is the placing of the cross rod of the steering gear behind the front axle instead of in front of it, as is customary. The stray dog that will occasionally try conclusions with a rapidly running machine, or the boulder that is sometimes thrown a few inches in the air by the front wheels, cannot damage the axle, but are more apt to prove detrimental to the steering gear.

Concerning the most apparent features of moment, the first to strike the eye is the fact that the car runs on 36 inch wheels and is shod with 4 and 4½ inch tires—the adoption of the same equipment on the smaller car giving it an unusually powerful and

to facilitate steering. The cylinders are cast in pairs, measure 5½ by 6 inches and develop their rated power at a moderate speed. The cylinder castings are all put through a special process of annealing before any machining is done on them. The crankshaft is worked out from a solid ingot, and the cam shafts are also machined from a solid, one-piece forging of tool steel. This



LOZIER VALVE LIFTS.



CLUTCH, FRONT VIEW.



LOZIER DISC CLUTCH.

housings of aluminum and may be readily lifted out perpendicularly without disturbing any other part of the car. By specially case-hardening the 2¼-inch journals of the crankshaft to a good depth, the use of a very hard grade of phosphor bronze is permitted, and the attention to detail that characterizes the design throughout is here again apparent in the provision of spiral grooves in the bearing faces that are filled with babbitt metal. The journals and end

bearings are $2\frac{1}{4}$ inches wide while the center bearing is $2\frac{1}{4}$ inches.

This is also the case where the lubrication is concerned. A 5 feed McCord pressure oiler supplies the main bearings, but instead of forcing the oil directly onto the bearing it is supplied to a liberal sized well machined out of the aluminum housing into which felt pads pressing against the sides of the bearing dip, acting as strainers. As these wells hold considerable oil they would be apt to prevent cutting even should the supply fail temporarily. Splash lubrication supplements this, to facilitate which oil grooves and leads are drilled through the connecting rod ends and journals, dippers being affixed to the former. The piston is provided with four rings, two being placed in each groove and pinned to prevent working round. As a guard against the wrist pin working loose, the set screws are drilled and a piece of steel wire passed through both and bent up at the ends. Steel pinions meshing with fibre gears built up on a bronze spider make for quiet running, and a positive valve action is insured by the provision of an additional helical spring contained in the bronze housing of the push rod, the details of this construction being illustrated by the accompanying photograph.

An aluminum casting forms the engine base, filling the entire space between the sides of the frame and is heavily webbed transversely to stiffen the latter. A second aluminum casting enclosing the flywheel, clutch and main shaft and bolted at its after end to the aluminum housing of the transmission itself, gives a perfectly clear and clean underbody from axle to axle, and is an excellent guaranty of cleanliness as well as a preventative of accident. The crankcase vent tube is carried up to a level with the top of the cylinders and forms a convenient method of filling the former with lubricant without the necessity of removing anything. Particular attention has been paid to the ignition, for which two totally independent systems are provided. A single Autocoil with a high tension distributor supplied by Witherbee accumulators, supplies the current for starting or emergency purposes, while a Simms-Bosch high tension magneto is used generally for running, the plugs for the former system being located over the inlet valves, with the second set over the exhaust.

A Schebler carburetter is employed in connection with the Lozier balanced throttle actuated by the governor. As shown by the accompanying photograph, this consists of a throttle of the piston type sliding horizontally and controlled by a helical spring, the pressure of which is overcome by the governor when the engine exceeds the speed for which it is set to run. In consequence, the throttle lever on the independent sector at the steering wheel merely adjusts the tension of the spring referred to and does not move the throttle itself. It is equivalent to setting the engine to run at any speed desired and which

it is prevented from exceeding by the action of the governor. In order to run the motor up to its maximum the throttle lever is moved until the tension of the spring is such that the governor cannot counteract it.

The transmission gives four speeds and reverse and runs on ball bearings throughout, in fact, there are 19 Hess-Bright ball bearings used, the only plain bearings employed being for the crankshaft. The shifting mechanism is of the selective type, square sliding shafts being used for the various changes, and an interlocking device being provided to guard against damaging the gears.

A feature that merits particular attention is the multiple disc clutch which is shown dismantled with its housings and on the end of the main shaft by the accompanying photographs. It is composed of 56 alternate plates of bronze and saw blade steel, the edges of the latter being stamped up at intervals around their periphery in order to provide springs which facilitate declutching. Otherwise the great amount of friction generated between the bronze and steel faces would tend to make the clutch extremely "fierce." Recesses are cut out of the edges of all the discs in the form of keyways, corresponding to large square keys in the cast iron housing which is of very substantial construction. The end of the engine shaft is bolted to a heavy bronze spider carrying the discs of the same kind while the transmission shaft is made fast to a plate, so that as a whole the clutch is very simple and should need little or no attention in the course of a season's running. The running brakes are placed on the countershaft and are located one on each side of the differential so as to overcome the skidding tendency caused by braking on one side of the latter and are also equalized. This is likewise true of the emergency brakes which are enclosed in dust-proof housings on the rear hubs. In connection with the brakes a convenient back stop is provided on the countershaft. It is thrown into action by a small lever, and not only supplies an effective check against backing down hill when all other means of stopping the car fail, but also permits of starting on a hill with brakes off. It is interconnected with the reverse lever so as not to be injured by reversing with it on and immediately comes into action again as soon as the car moves forward. Semi-elliptic springs are used forward with a half platform at the rear joined to the side members with double shackles which permit of a great deal of either side or end movement on the part of the chassis without transmitting it to the body. Every nut on the car is locked with cotters or split pins, so that, as a tourist disgustedly expressed himself, "You don't have to spend one day running and the next day going back over the route to pick up nuts." This is but one of the items evidencing the great amount of painstaking care that has been devoted to the matter of detail, and after all it is the little things that make for satisfactory

running or the reverse, nowadays. The wheel base is 120 inches and with the 7 passenger body in place and all on, the weight is 3,100 pounds.

Thomas Makes an Interesting Test.

At the instance of a prominent engineering firm of Chicago, the E. R. Thomas Motor Company has recently been conducting a series of road tests near its Buffalo plant. A letter was received some days ago asking that the company supply data for the purpose of assisting the engineers in determining the best material for highway construction. Comfort and speed were two of the points on which information was asked particularly.

As soon as the letter was received, a car was set aside for experimental purposes on various kinds of roads. A brick pavement was selected as the standard and a car was geared low enough to be capable of making just a mile a minute on the selected course. It was run over this measured brick pavement distance to prove that this speed was uniform and then was taken over a measured mile of asphalt. Next a dirt road was tried and then a stretch of macadam. As a result, the speed of these various road materials with one mile in one minute over a brick pavement as the standard was shown to be as follows:

Brick pavement.....	1:00
Asphalt pavement.....	1:02
Dirt road.....	1:05
Macadam road.....	:58 $\frac{1}{2}$

For speed it was shown that the macadam was faster than the other three, but for dust the brick pavement was preferable. Observations show that the macadam, unless oiled or sprinkled, is dustier for all classes of travel than the brick.

The report was therefore made to the Chicago engineers that while macadam is the best for speed, and, under ideal conditions, for comfort, too, it is less desirable than brick under every day conditions.

"Sewer Explosions," new Style.

That New York is not the only municipality in which the motor car is made to shoulder the blame of "sewer explosions," in which a mysterious vapor which smells like gasoline becomes ignited with more or less potent effect, is made plain by recent dispatches from London, which state that down in one of the suburbs a couple of workmen who were attempting by the aid of a lighted candle to discover a leak in a sewer, were suddenly pitched over by a tremendous explosion. As is usual in such cases, a nearby manhole cover went sailing into space, and the rumblings and detonations familiar to Gothamites at the present time, were heard to the last echo. Whereupon a local daily in reporting the happening the following day, sagely explained that the explosion had been caused by gasoline which had escaped from passing motor cars and had there become vaporized!

HOW ENGINES ARE TESTED

Methods Employed in the big Factories— How Loads are Varied.

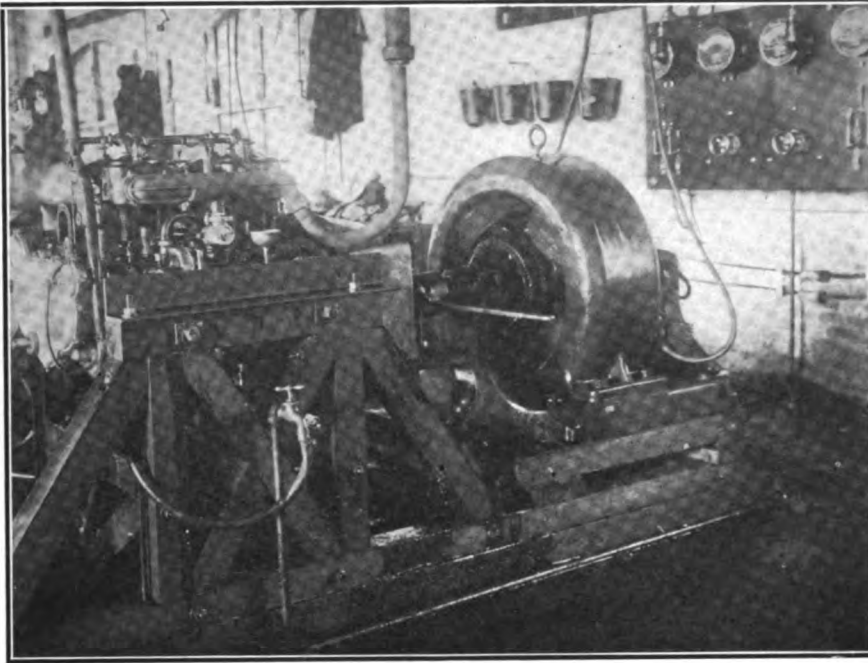
It would seem reasonable to suppose that after having worked out the design of a

stantly increased until they reach their maximum output, the current developed by the dynamo being absorbed by passing it through a special water rheostat composed of iron plates immersed in brine. The resistance, upon the amount of which the load on the generator depends, is varied

power rating accurately determined. This test follows what is known as the "running in" process which consists of flooding the motor with lubricating oil and running it by belt for a considerable length of time and is in turn followed by the "trying out" tests, which are carried out by running the car several hundred miles on the road.

In the case of the Locomobile motors every effort is made to have the test which follows the running in approach as closely as possible to actual service conditions. Locomobile camshafts for operating the valves and the make and break mechanism are all duplicated on a special machine that turns them out exactly alike. In addition, they are tested to 1/1000 of an inch both before and after hardening, the cams being hardened at one time and the camshaft journals at another, the shafts going through the hardening ovens twice in order to prevent distortion. The motor is accurately timed before running in and after the latter operation is ready for the testing bed. The cooling water is circulated by its own centrifugal pump and both the carburetter supplying the gas and the magneto which provides the spark for ignition are those which will form its accessories on the car.

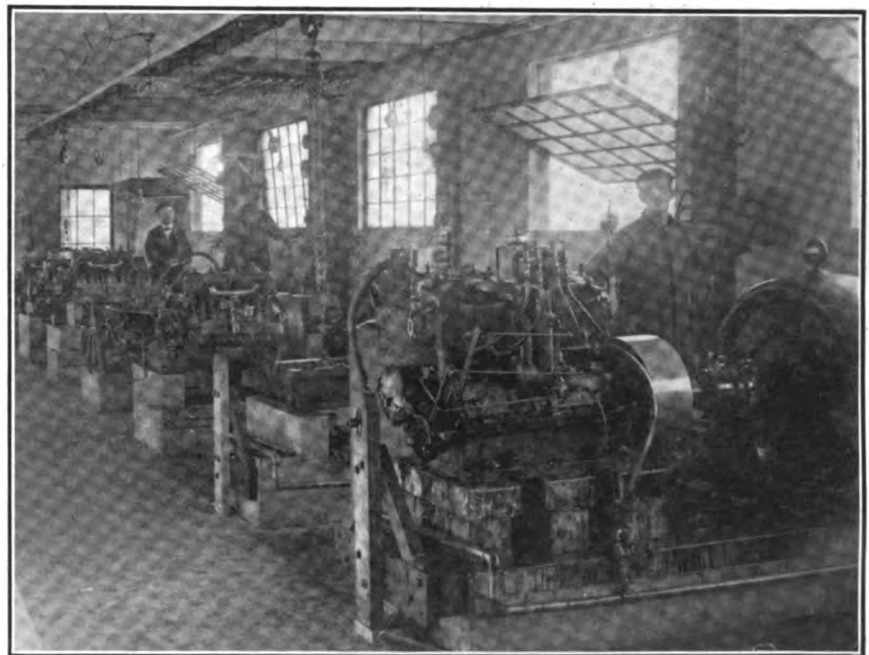
The motor is first run idle slowly for some time before being coupled to the generator, which is shown with its switchboard directly behind it at the right of the photograph. A clutch of the regulation type em-



"TRYING OUT" A LOCOMOBILE MOTOR

motor and built experimental types galore which are tested until no possible doubt of their efficiency remains, it would be unnecessary to put the stock motors built after the same design through any particular process of testing. Quite the contrary is the case, however, as regardless of the painstaking care that may be devoted to turning out every part the same to the thousand part of an inch, and every motor a duplicate of its predecessors to an equally exacting degree, there still remains something akin to the personal factor—each one of the motors corresponds to an entity and in the building of high grade cars, the performance of each individual engine must be ascertained before it takes its place on the chassis.

This is as true of the Columbia and Locomobile motors as of all others, and the manner in which they are put through this preliminary ordeal is interesting. In the Columbia testing room, a group of special beds are fitted in a line so that a number of motors may be tested simultaneously. At the end of each there is a multipolar generator with an independent switchboard and rheostat. To this the motor is directly coupled and run under the supervision of expert testers, who constantly watch the motors in operation and stop them from time to time for adjustment so that when it finally leaves the testing bed, the timing of the valves, ignition and other functions is absolutely correct. The motors are run under a light load at first, which is con-



TESTING THE COLUMBIA ENGINES.

by changing the number of plates in circuit or moving them further apart. The output is readily determined by the reading of the ammeter and voltmeter, and after making due allowance for the efficiency of the generator and other parts of the testing apparatus, the performance of the motor can be readily ascertained and its horse-

power rating accurately determined. This test follows what is known as the "running in" process which consists of flooding the motor with lubricating oil and running it by belt for a considerable length of time and is in turn followed by the "trying out" tests, which are carried out by running the car several hundred miles on the road. The motor is first run idle slowly for some time before being coupled to the generator, which is shown with its switchboard directly behind it at the right of the photograph. A clutch of the regulation type em-

being devoted to testing each motor so that any possible defects will manifest themselves and so that its ability to maintain its horsepower rating steadily will be conclusively demonstrated. The apparatus shown in the accompanying photograph is that employed for the 30-35 horsepower Locomobile motors, the duplicate instruments on the switchboard being accounted for by the fact that the testing beds are made to accommodate two motors. Units of the same kind, but smaller, are used for testing the 15-20 horsepower motors.

Iowa Jester now Files his Claim.

Although it is a much mooted question who built and operated the first automobile in America, John Wesley Jester, of South English, Iowa, stoutly maintains that he was the first automobile owner and maker in this country and that his assertion is no jest, either.

According to the raconteur, 17 years ago last month, Jester mounted the seat of the most weird contraption that the State of Iowa ever knew, sounded a whistle and piloted his six horsepower automobile through the town of English at the rate of ten miles an hour. He was a king for a while. The car had cost Jester \$800 in real money, but he did not care.

"So far as I have been able to learn," said Jester, "I have the first automobile ever built in this country. I became possessed of the microbe, as it were, to build one by the receipt of a little pamphlet from France.

"I wrote everywhere for information about an automobile and tried factory after factory. It was up to me to build everything except the engine. That I obtained in St. Louis. While it was a two-cylinder motor it really was made up of two engines, and developed six horsepower. This engine was the only really imperfect feature of the automobile I made seventeen years ago, as compared with the workmanship and features of the up-to-date touring cars now put out.

"If I had a new engine put into the old wagon I made so long ago—I have made twenty-five miles an hour with it a good road—I should not be much offended if some one would permit me to enter it for the Vanderbilt cup race. The wheels are thirty-two inches, especially built for my order and provided with hard rubber tires. The transmission was of the selective type, two speeds forward and one reverse, also built for me. I got some of the machinery at Oskaloosa, some at Ottumwa and some at What Cheer. The parts that came from the latter city brought good cheer, for they made the machine a success.

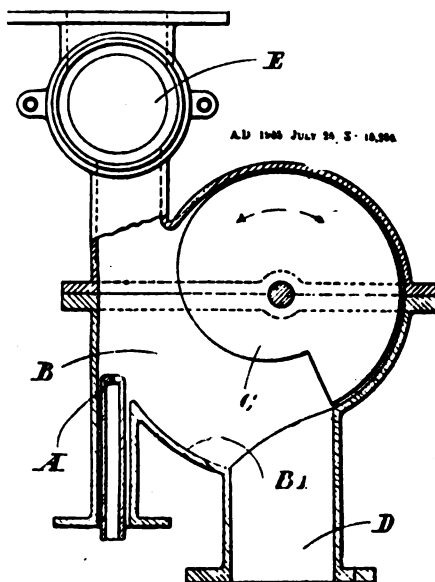
"This automobile," concluded the Iowa inventor, "had two seats. It was a sort of a trap, the passengers sitting back to back. The power was applied to the rear axle and by a departure from all common ideas of the transmission of power then in use. I got a high percentage of the entire engine power on that axle. There was no differential, of course."

TO KEEP SUCTION UNIFORM

Noble Evolves Novel Means of Mixing and Throttling to Attain that End.

A most novel form of mixing and throttling chamber for carburettors has recently been evolved by P. W. Noble, a well known English authority, which while introducing no new or unknown principle in connection with its application, yet serves to illustrate the variety of means which may be employed to secure the desired end of maintaining a uniform suction in the jet, and displays considerable originality in idea.

Unlike other arrangements, the jet A, instead of being placed in the centre of



the chamber, is set at one side and in close proximity to the wall B', while the air inlet is at the other side of it, the tendency due to the shape of the inlet passage D, being to cause a sharp blast of air to pass over the top of the jet and impinging against the wall above it, be deflected slightly, by the same token, mingling freely with the gasoline which is lifted by it. Set in a suitable recess opposite the jet is a broad faced cam C, pivoted upon a trunion shaft which is set in the walls of the casing and actuated by outside means. The contour of this cam is such that as it is turned about its axis, the opening between its face and the opposite side of the air inlet passage and the jet adjacent to it, is gradually closed up, the blast of air by the same token being concentrated at a point nearer the top of the jet than before.

By this means, granting, of course, that the profile of the cam is properly worked out, the result of any throttling action, causing a diminution in the suction of the engine, must at the same time cause a tendency to an increase in the velocity of the intruding air, which will counterbalance the decrease in the initial suction by the proper amount to regulate the lift at the jet to a constant quantity. The operation of the cam may be either manual or auto-

matic, the former method of actuation being preferred by the designer, who accordingly proposes to connect it with some form of governor. Although, in the arrangement shown, the jet is of the common circular type, the inventor claims greater efficiency for a flat or rectangular opening.

What Raises Dust and Reduces it.

A motorist who has made a study of the dust problem has summarized the result of recent observations as follows:

Sharp corners and excessive road crowns lead to slip, and, therefore, to dust.

More dust is raised by cars from a rough road than from an equally dusty road if it be smooth for an equal speed of traveling.

Tarmac is one of the best anti-dust road surfaces. Tar-macadam, the spreading of crude oil on roads, the spreading of oil emulsions in water on roads, are important palliatives.

Wood, asphalt and cobbles are not dusty save after use by horse traffic.

Cars with smooth, boat-shaped under surfaces are less dusty than others.

Cars with flaring mudguards fitted with leather flaps near the road are more dusty.

Cars on high wheels well clear of the ground are less dusty.

Cars with large tool boxes at the back reaching low down between the wheels are dusty.

Large car bodies are in some cases dustier than small ones.

Blowing off the exhaust near the ground is dusty.

Cars fitted with engines having an insufficient flywheel or an uneven turning effort from any cause are more dusty.

Cars whose chassis are mounted on very easy springs having a large up-and-down travel will suck up the dust with each rise and fall of the body on rough roads.

Front wheels—or rolling wheels—raise less dust than back wheels or driven wheels.

Smooth pneumatic tires are dusty.

Solid pneumatic tires are more dusty at higher speeds and with high-powered engines.

Non-skid devices, such as small steel studs, etc., not only do not increase the dust, but actually diminish it.

That a car fitted with two long vertical dust screens placed near the ground between the road wheels and the chassis, and extending the full length of the car edge-wise to the direction of travelling (i. e., arranged to prevent the dust-laden air thrown up by the road wheels from mixing with the air draught which passes underneath the car), showed no improvement from these attachments.

Horizontal screens fixed so as to closely embrace the driving wheel tires, and adjustable to various heights from the ground, were tried, in the hope that they might throw back on to the road the dust-laden air raised by the wheels, and so prevent it from becoming entangled in the air eddies at the back of the car. No good result was obtained.

KNIGHT'S RAILWAY COACH

It will Employ a Gasolene Motor, but not as Other Coaches Employ Them.

Why it should be deemed necessary to follow the roundabout process of converting the power of a gasoline engine into electricity, and sending it through electric motors in order to reconvert it into mechanical energy at the driving wheels, simply because the motor is to be applied to a railway coach, is something that appears unfathomable to the uninitiated. It means more than doubling the first cost of the car's mechanism, adding to its weight and complication enormously and greatly increasing the cost of maintenance. The explanation is to be found in the one word flexibility, and that is something the gas motor is not credited with having to an extent sufficient to warrant the application of its power direct to the driving wheels; that is, directly as is done in the case of the automobile, which means through gears in starting and direct at high speed.

Theoretically the gasolene motor is only efficient when run steadily at its normal speed, and this, of course, represents a condition under which a motor of any type develops its highest degree of efficiency. For railway work such as that contemplated by the new application of the gasolene engine, the starting torque is extremely high; frequently beyond the normal capacity of the engine to overcome. In order not to burden the car with an engine out of proportion to its ordinary requirements simply with a view to starting readily and overcoming grades, as well as the difficulty of changing speed through the medium of gears as is ordinarily done in the automobile, a generator and storage battery are installed. The latter is called upon whenever extra power is needed, the generator alone being sufficient to provide for all ordinary requirements.

But now a native of Illinois has undertaken to show that all this extra complication and weight is unnecessary. He is H. W. Knight, and is at the head of the Interurban Power Co., of Peoria, which has been organized to build motor cars for interurban lines. Working on the theory that as the gasolene motor will drive an automobile over a good road as fast as any could desire to travel, it should readily do the same with a railway coach on steel rails, Mr. Knight has decided to eliminate the dynamo, storage batteries and electric motors and connect his gasolene motors direct. He has no special design of motor that he wishes to exploit or that is going to revolutionize things generally; building the motors will be left entirely to manufacturers who make a specialty of it. The company will devote its attention to building the lines and operating them.

The Knight car is more of a locomotive than a car, as it is not intended to provide passenger accommodation except to a limit-

ed extent, but will pull a trailer. Part of it will be used as a smoking compartment, the remainder being devoted entirely to the engine space. This is done so as to eliminate all vibration and smell from the passenger coach which will be entirely independent. It is anticipated by the inventor that even the smoking compartment of the motor car proper will be more free from noise and vibration than cars of this kind now in use.

Perfumery for the Exhaust.

Evidently the "smell behind" has been bothering a certain Swiss inventor, one Antonin Deletrain, who has just come forth with a process, which for a merely nominal outlay, will insure a perfumed trail for at least a hundred miles. At the end of this distance, it is only necessary to drop another "Motorcone" into the gasolene tank to convert the engine into a young cologne factory for another century. The cones are very small, only 1½ inches high by 1 inch in diameter and so far heliotrope is a favorite. According to the inventor, they are composed of a number of acids mixed in certain proportions, the combination of which has taken him several years to evolve. The chief ingredient is said to be a new and extra powerful carburite, discovered by the inventor and a secret with him. One cone to ten gallons of gasolene is said to be the correct proportion and according to the claims made for the invention, will not only create a perfumed trail, but will increase the driving power for the fuel fully tenfold.

New Features of "Moving Day."

With the advent of May 1st this year there entered a new element in the daily life of those who pack their household goods once a twelvemonth or oftener to depart for fields and pastures new—the power driven moving van. It is an innovation that is by no means general as yet, as Chicago is probably the only place in the country that has adopted it for this purpose on any scale. In some instances the work of the slow moving truck was supplemented by the owners of touring cars who insured the safe transportation of the most fragile and valuable pieces by carrying them in the tonneaux of their cars.

Monks Organize Motor Car Service.

Originally intended only for the hauling of supplies up the mountain to the Hospice of the Grand St. Bernard, the monks of the latter institution intend to organize a motor car service between the latter and the Simplon Hospice, as well as between Domodossola and Aosta. The cars have been designed especially with a view to negotiating the very heavy grades and the gentle tourists who are anxious to see the places in question will form the passengers. The chauffeurs will be chosen from among the monks themselves and will wear cowls as usual.

"GIVING UP" TO CHAUFFEURS

Why one Man Considers it Cheap Insurance—Tricks that Bring Tribute.

"It's a very cheap kind of guarantee for smooth and satisfactory running," is the way a Parisian agent sums up the situation of the chauffeur and his commission, a controversy on this constantly recurring subject having been the talk of the day with the dealers of the French capital recently. In other words it is far more economical to placate the grafting chauffeur by handing out his "pourboire" right at the start than risk his enmity and the multifarious ways that he has of showing it to "get even." And to judge from some of the instances referred to, such would seem to be the case, for there is nothing whatever to prevent the "chauffeur" who has not been "seen" from tampering with the mechanism and there is no telling just what form the disgruntled one's diabolical ingenuity may take. For instance, one made a practice of sprinkling a little sand in the lubricating oil and the gasolene. The car suffered in consequence and the maker suffered likewise for he had to smooth down an extremely irate owner.

Tribute is levied upon the coach builders besides, for it is the custom in Paris to buy the chassis of one maker and the body of another. He must give up to the same extent as the manufacturer and the supply dealer; no one is immune from this species of bleeding. Nothing is easier than to see that a liberal proportion of gasolene finds its way into the water used for washing the car and that is the end of its fine finish; it begins to look shabby in the course of a few weeks and the maker is accused of turning out poor work. Or what is simpler than easing off the nuts of the bolts fastening the body to the frame? These are but isolated instances of the innumerable forms that the chauffeur's evil plans may take. Sometimes the maker of the car or the body builder begins to see daylight after the car has come back to him several times in the first few weeks' use and makes up for his oversight. Then the trouble ceases like magic.

On the whole the Parisian dealers approve the practice of "seeing" the chauffeur of the owner who buys a new car. The custom of tipping everyone, everywhere, everytime is such an established feature of Continental everyday life that it is bred in the bone, and as the chauffeur is none the less a menial, though he has not, as a general rule, come to the livery of the flunkey, he considers it his inherent right. And just as a man who wishes to frequent a certain restaurant or barber's dare not leave without distributing the usual pourboire, so the maker and everyone else connected with the automobile trade is helpless; he must give up. Their cars or their daily course of business will no more run smoothly without this form of lubricant than it will without the proper oil.

ENGINE WITH FIXED PISTON

Travels the Four Cycles but Only One Revolution—Good Results Obtained.

Application of the modern gasoline motor to the propulsion of balloons has been responsible for the creation of many changes in design that would otherwise probably not have come about, as well as for the production of some motors of a very uncommon type such as the Tygard, says the American Machinist. This motor is remarkable for the fact that, though employing the Beau de Rochas or four-stroke cycle, and having but one piston, one impulse per revolution is obtained, without having recourse to piston rod stuffing boxes; and also for its low weight per horsepower despite its strong and substantial construction.

The details of its peculiar design as well as its cycle of operations will be clear upon referring to the accompanying illustrations, which are two longitudinal sections, Fig. 1 being a section through the axis of the shaft, and Fig. 2 a section on a plane at right angles to the first. In addition, Fig. 3 shows the valve on a larger scale; this cut being made from a sketch of a valve differing a little from the one shown in the engine. The first engine built was formed by removing from the crank-case or base of a 3 horsepower De Dion-Bouton motor its water-cooled cylinder and bolting to the same base the cylinder end of the Tygard motor, the result of the change being to leave the weight of the engine at 100 pounds, while the horsepower was increased to six. The present stock engine has the same total weight, viz., 100 pounds, delivers 8 brake horsepower (hence its weight per horsepower is $12\frac{1}{2}$ pounds), it has an aluminum exterior casing, a cylinder diameter of 3 inches, stroke $3\frac{1}{2}$ inches and the distance from center of shaft to top of case is $24\frac{1}{8}$ inches.

The first striking thing about the mechanical construction of the Tygard engine is that the piston is fixed and the cylinder moves. The divided shaft, cranks and connecting-rod do not differ materially from those usual with the gasoline engines of automobiles and motorcycles. In the description which follows the engine is regarded as a vertical. A is the frame of the engine, B is the cylinder, made in top and bottom halves, held together by bolts C. Into the lower half of the cylinder is fixed the wrist pin, passing through the upper end of the connecting-rod. This end of the cylinder is enlarged to slide in the frame A and acts as a cross-head, taking the side-thrust of the connecting-rod, so that this thrust does not cause a side pressure between the piston and the cylinder. D is the stationary piston, which is made gas-tight in the cylinder by packing rings near its upper and lower edges. In order to support the piston the cylinder has, on each side, a

slot near its middle, and through this slot project out the lugs E of the piston, which

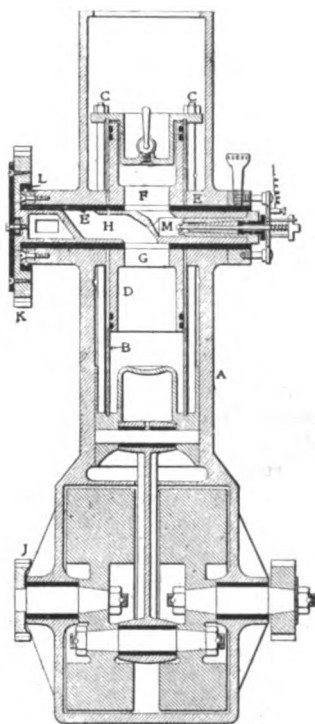


FIG. 1.

are firmly seated in the frame A. These lugs are hollow and form the seat for the

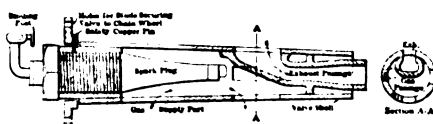


FIG. 3.

one rotary valve of the engine, which performs all the functions of the collection of

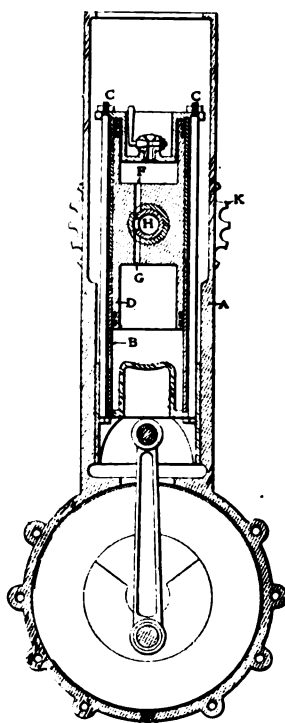


FIG. 2.

poppet valves, cams, gears, springs, etc., usual on a hydro-carbon motor. Within

one of the hollow lugs is also located the one spark plug, which gives the ignition for both the upper and lower combustion spaces. These combustion spaces, as is pretty evident, are formed between the upper and lower heads, respectively, of the moving cylinder and the central fixed piston; the piston itself is hollow and the cylinder heads are introverted or formed with projections into the piston approaching close to its central body. The inlet and outlet to each of these combustion spaces are through ports (F and G) cut through each piston face into a valve-seat located in a bore extending completely through the piston and lugs on each side of it; into this seat is fitted a plug valve H having a small amount of taper. This valve is a hollow gray-iron shell with ports which communicate alternately with the fuel supply and with the exhaust outlet. It is continuously rotated at one-half the speed of the crankshaft by a silent chain drive, the sprocket wheels J and K of which are visible in the illustration.

The Situation Expressively Expressed.

"Excuse me from the automobile habit," the man who had just had his first ride in a motor car is alleged to have said: "Yesterday a friend of mine took me out for a whirl in his sixty horsepower car, with the intention of inspiring in me an ambition to buy one of the big machines. We got out about forty miles when something happened in the interior of the car. It sounded as if the flipperflap had broken. My friend crawled under the car to investigate and found that the jiggerclap had cracked, allowing the hopperchoke to smash into the dingleback, jamming the bilchug against the woffle snatcher so badly that the fluking on the right hand side had torn loose. This was pretty bad, as any chauffeur knows, but the worst of it all was that the plunker-hole had become filled up with fiber from the whipperbung, preventing the slapigus from working easily in the packerhatch, and the only thing to be done was to borrow a vibberskid from some passing automobilist and proceed half speed by fixing the emergency clincherbing. We did this and got half way back to the city at the rate of almost a mile an hour, when the rafflebang worked loose and the gasoline began to work down in the chigerbiff. The machine came to a dead stop and my friend gave the job up. We came back to town at the end of a rope. I have no desire to own of the things since that experience."

Those "Rotten" Piston Rings!

"Your piston rings are 'rotten'; they snapped in two every time I tried to push them over the piston," wrote an irate customer to a London agency for a French car. It is a new way of stating the matter, but undoubtedly anyone who attempts to spread the brittle cast iron rings as if they were spring steel will have a similar experience. Despite the fact, no inconsiderable ignorance exists on the subject.

STRAIN ON THE VARNISH

Rarely Considered Feature of Automobile Usage—Elastic Coats Made Necessary.

"Even the varnish with an endless pedigree must show a fine turn of endurance to stay with a good glimmer of lustre to its coat for a reasonable term of service upon the vibrating horseless leviathan," says a well known authority upon automobile and carriage body painting. "There is a tenseness about the service a 'chug-chug' motion in the machine's days of action that virtually puts a continuous and severe strain upon the varnish.

"With all the facilities for easy oscillation of the body of the vehicle furnished by the builders, there is nevertheless a telling strain upon the varnish that is not to be remarked in connection with the average horsedrawn carriage. The automobile painter and finisher has in the wearing and use of varnish a rich field of research and experiment if he would equal his brother craftsman of the carriage paint shop in getting the best value out of varnish.

"It scarcely need be repeated here that the richest and finest varnish imaginable is at the pleasure of the finisher, and if adequate provision is made for its reception upon the surface, and its application to the surface, there would seem just grounds upon which to found a demand for the maximum wear of the illuminating material.

"We have said that the vibration, oscillation and the sometimes sharp, rebounding-like motion are incidents of service which operate to the undoing of varnish. The painter's plan of action lies therefore along the line of counteracting in a very substantial way the conditions above mentioned. First in order, then, is the preparation of a supporting base that will furnish the required amount of elasticity—that will, in short, respond to all the laws of diverse motions and counter-motions without fracturing in any least fraction of a degree the surface supporting the varnish.

"The exact quantity of elasticity which the supporting foundation should contain will, of course, depend in a large part upon the time allowed the painter to bring the vehicle to a finish, but for the strictly pleasure 'auto,' for the finish of which greater time is usually conceded, the elasticity may well be proportioned to the measure of strain usually imposed upon the surface. In the case of the pleasure automobile, for the painting of which additional time may be granted, I would advise the employment of a little more lead and oil as a means of contributing the greater elasticity sought for. The rough stuff to be preceded, naturally, by lead coats proportioned as to elasticity to meet the larger suppleness of the following coats.

"After the rough stuff I would suggest an increased supply of varnish as a binder in the color, thus carrying the chain of elasticity directly through to the varnish coats.

"With elastic rubbing varnish and elastic finishing varnish coats carefully developed in all the hardening and drying phases, we then have a united foundation, or, rather, structure, harmonious in all its paths, and all parts working together for the maximum life and lustre of the varnish.

"There is not much reason, and certainly less practical trade logic, in bringing up certain parts of the paint and varnish structure hard and quick, and imparting to certain other parts an overbalancing measure of springiness, the two extremes working to the destruction of all. A house divided against itself cannot stand, which likewise describes the fall of the divided paint and varnish structure."

Shocking Language of the Garage.

In very many garages there is a bulletin board whereon the wants and wishes of the various patrons are marked, and when attended to are rubbed off, and the language it speaks is at times shocking, to say the least. The shop men naturally become familiar with the disposition of the owners of the cars to a greater or less degree—so familiar, indeed, that each machine has a name, some after the owners of the cars and others from incidents connected with them.

In one such establishment one car bears the name of a certain doctor, while another is known around the garage as Maud. Imagine the amusement of the dealer when entering the garage one morning to find chalked on the board: "Wash Dr. Blank, oil his crank case and blow him up," which being interpreted is, Clean the car, put oil in the crankcase of the engine and inflate the tires. Just below the above admonition was this inscription: "Twist Maud's tail first." This message meant that some work had to be done on the car nicknamed Maud the first thing next day. While to the average citizen this talk may be as hard to understand as when in certain restaurants the waiter yells to the cook: "Draw one in the dark and fry one sunnyside up," it is, nevertheless, the vernacular of the garage, and is perfectly understood by the employees.

Milk Can Test of Shock Absorbers.

One of the most original contests to be organized this summer on the other side, is that known as the "milk-pot competition." The idea of it is to test the relative values of the various shock-absorbers now on the market, as hitherto they have not been compared by public tests. Every competitor will be required to carry two boxes each holding eight milk cans without covers. The boxes are to be fixed in the back of the car between the two doors of the side entrance, and before the start of the race the cans will be filled with a certain quantity of water. After a run of about one hundred miles the quantity of water remaining in the cans will be measured, and the car having the most water in the pots will be declared the winner.

WELLES ON WAGON LAMPS

Solar Man Outlines Requirements of Commercial Cars—Appearance a Factor.

A fact which is just beginning to appeal to those who cater to the motor vehicle industry is that numerous factors in connection with the commercial or utility vehicle although seemingly identical with corresponding considerations, as applied to the pleasure types of machine, are in reality, totally different from them, and are governed by certain special requirements of the work to be done. Thus, it is coming to be a recognized fact that to put a light and spacious body on a runabout chassis does not, of necessity, constitute the making of a light delivery wagon which is really suitable for all the demands which may be made upon it, and in lesser degree, it is seen that all of the parts and accessories of the machine must be contrived with due regard to the class of duty for which they are intended. One of the first to develop this idea in a specific way, was Richard H. Welles, treasurer of the Badger Brass Manufacturing Company, of Kenosha, Wis., makers of the Solar lamps.

When seen by a Motor World man recently, Mr. Welles summarized the requirements of lights for commercial vehicle work and classified the needs of the type somewhat as follows:

"You see," he said, "aside from the fact that the commercial vehicle imposes a totally different service upon its entire equipment from that which is required of the corresponding fittings when applied to pleasure cars, there is a considerable distinction between the work which is required of the various types of the commercial car itself, which, in turn, imposes varying duties upon the entire equipment. Thus," he continued, "the natural division of all commercial machines under the double classification of light and heavy duty, similarly grades the entire equipment.

"For machines of the lighter class, which are called upon to do duty as delivery wagons in many cases, and for other work requiring a fair rate of speed together with frequent stops, it is quite essential that the lighting equipment be such that the load may be inspected from time to time, and that the inspection of street signs and door numbers be made possible when required. At the same time, the essential necessity of simplifying and reducing the first cost of the equipment to the last degree, generally precludes the possibility of utilizing a number of lamps including a body light and a searchlight. On this account, the most desirable thing in this line is a form of swinging lamp, which could be directed at will upon the road ahead on either side, or turned back into the body. To properly fulfill the demands of this class of work, such a lamp should be made to conform well with the general appearance of the machine, and the sort of trade in which it is to be

used, and, needless to say, it should be of good appearance in itself, and of good quality.

"As to the illuminating equipment for vehicles of the heavy duty class, a steel lamp, heavily made, and designed to withstand the severest shocks to which it is at any time liable, solidly built, and painted to conform to the body color of the machine will best serve the purpose.

"Of course, the matter of ornamentation, the use of brass finish and so on depends more or less upon the nature of the business which the vehicle is to serve. Probably nothing contributes more to the appearance of the car than the lamps, and the impression which it creates is governed by them to a greater degree than the man in the street would begin to suppose, yet the degree and nature of the display which is permitted on a business vehicle is largely a matter of taste and due regard for the fitness of things. For instance, a massive headlight of the locomotive type, such as might be appropriate to a truck, would look totally out of place on a wagon used in the delivery of light merchandise or gentlemen's clothing, and by the same token, a pair of imported brass searchlights mounted on the forward end of a truck which is used to transport baled cotton, would be equally incongruous."

To Assist the Exhaust.

With the idea of assisting in the scavenging of the cylinders, an inventor has just taken out foreign patents on a device in which an exhaust fan is placed in the outlet of the muffler, its effect being to lower the pressure within, and at certain portions of the cycle to serve as a suction producer in drawing the burned gasses from within. To this intent, the fan is mounted on ball bearings on an axis located at the centre of the outlet. Naturally, during the early part of the exhaust, the sharp impinging of the exhaust upon the blades causes it to turn, their velocity thereby being broken up to a certain extent, and the functions of cooling and muffling thereby increased. When the pressure has fallen in a measure, the momentum which has been accumulated in the fan and a comparatively heavy fly-wheel which is mounted with it, continues its motion, with the result that it is transformed into a suction blower, for the time being, and tends to further lower the pressure within the cylinder prior to the closing of the exhaust valve.

Advices from London state that the opening of the carriage season there finds matters in very bad shape, prices being extraordinarily low for certain classes of vehicles and the demand poor. By the carriage builders, this state of affairs is attributed solely to the inroads made by the motor car. Many fine stables are being given up, and cars used partially or entirely to take their place, and of those who still use horses, few are outlaying much upon the equippages.

FOR ALL-AROUND TESTS

Four Basic Factors to be Considered—How they may be Applied.

At the present time, when the attention of the motoring world is being focused more and more upon those classes of competition which strive to bring out the general merit of a car's performance, and away from those which seek to develop only a single quality of its excellence, as for instance, its speed capabilities, it is constantly becoming more and more evident that so far, no just and equitable basis of comparison, applicable in any broad sense to vehicles of all types, has been evolved. Consequently, the following suggestion of a French engineer in connection with a consideration of the heavy vehicle trials held in France last fall is particularly appropos.

"At the December meeting of the French Society of Civil Engineers, after the reading of the report of the last contest for heavy duty and industrial vehicles, Mr. R. Arnoux made a very wise suggestion which, as we believe, ought to receive consideration in the future." Says a writer in *La Nature*: "He first of all brought out the fact that in all motor car races and competitions, the attention is concentrated either upon the average speed attained, without regard to the consumption of fuel or lubricant, or to the consumption without regard to the speed. Thus, there are the two classes of speed test, and consumption test based on the ton-mileage. The automobile has today become an essential in the transportation business, he said. But in all questions relating to transportation, four basic factors are to be taken into account, namely: the load carried, the distance to be covered, the rate of transportation, and the corresponding cost. And, obviously, the best solution of the problem is such as will admit of carrying the maximum load with the greatest possible speed, at a minimum of expense.

"Mr. Arnoux drew attention to the methods of the railroad companies which base their tariffs in proportion to the load carried, the distance traversed, and also, in proportion to the speed of transportation, the tariff being modified greatly in accordance with either high or low rates of speed. When it comes to automobile transportation, of course the speed element has an especially important commercial value.

"Based on these considerations, he constructed a formula which yields what he termed the 'co-efficient of merit,' of the self-propelled vehicle. If the load carried be expressed by P, representing tons, the distance in miles by L, the speed in miles per hour by V, and the fuel consumption in gallons, by C, then,

$$M = \frac{PLV}{C}$$

"This formula gives then, for each vehicle, the number of ton-miles-miles per hour per gallon of fuel. Equally as well, the

number of ton-miles-miles per hour could be replaced by an expression of the capacity of haulage, when the co-efficient of merit would give a ready method of securing the hauling capacity per gallon of fuel consumed.

"Or, in the formula, the speed V, could be replaced by the ratio of the distance covered and the time T, taken in covering the course, when the expression would become

$$M = \frac{PL^2}{CT}$$

"Mr. Arnoux, had, it seems, proposed this method of classification as far back as 1901. It permits of the inclusion under a single caption, in one and the same test, of vehicles of totally different types. Its originator further suggests that its use today would have the effect of compelling the manufacturers to make an elaborate study of the motor, and the organs of transmission, gearing, chains, wheels and tires. They would also seek to avoid any excessive consumption of fuel and lubricant.

"It is not enough to consider in a test solely the qualities of speed and endurance in a vehicle. That which is important above all is at the same time to account for the economy of running."

Stripped of all technical verbiage, this method introduces an arbitrary means of comparison based on the load carried, the rate of speed maintained, the distance covered, and the fuel consumption. For practical usage, it would probably serve to better advantage, were the weight of the vehicle loaded to be taken into account instead of the load alone, as that would also consider the load efficiency of the machine—a most important factor in construction.

This is the day of endurance trials, economy tests, and consumption tests. But at present there is a most deplorable lack of agreement among the bodies conducting such events as to the methods of accumulating data, and the manner of its subsequent treatment in the evolution of a score. Of course, some method of universal rating will be agreed upon ultimately, but in seeking it, and in working out preliminary tests, such as the A. C. A. Efficiency Test of last week is admitted to be, it should be born in mind that the more inclusive the formula finally produced, the more it will teach the user, and the greater will be its value to the maker.

Here's the "Motor Jobmaster."

"Motor Jobmasters, Ltd.," is the euphonious title of a London concern that is probably the first to undertake the business of hiring out automobiles on an extensive scale. The business will be started with a stud of 50 gasoline cars, of the landaulet, brougham and open types, the latter provided with cape tops. The drivers will all be uniformed and the charges will be moderate in contrast with the rates that have obtained for this sort of service hitherto.

The Week's Patents.

817,734. Ball Bearing. Eugene Blin, Aubervilliers, France, assignor to La Societe des Etablissements Malicet et Blin, Aubervilliers, France. Filed Oct. 22, 1904. Serial No. 229,619.

Claim.—A two-part ball-bearing and ball-retaining device comprising two annular concentric rings, ball track grooves on the outer circumference of the inner ring and on notches in the edges of said rings of such depth that when the balls are inserted and spring into the ball-race the opening formed by the notches is slightly less than the diameter of the balls, which cannot therefore escape, substantially as set forth.

818,735. Means for Cooling Internal-Combustion Engines. Fred H. Bogart, New Britain, Conn., assignor to Corbin Motor Vehicle Corporation, New Britain, Conn., a corporation of Connecticut. Filed April 4, 1905. Serial No. 253,816.

Claim.—1. In an apparatus for cooling internal-combustion motors of the air-cooled variety, an engine-shaft, a fan-shaft substantially parallel therewith, an engine-cylinder between said shafts, a fan between said engine-cylinder and fan-shaft, and a means of connection between said shafts.

818,768. Electrical Controller for Electric Vehicles. Karsten Knudsen, Chicago, Ill. Filed Jan. 13, 1902. Serial No. 89,529.

Claim.—1. The combination with contact segments, of a drum connected to rotate therewith, a coiled spring mounted in the drum and having its opposite ends normally resting upon opposite sides of a lug or said drum, a segment-rotating device mounted opposite the end of the drum and having a pin projecting thereinto and located between the ends of the coiled spring whereby when said part is rotated in either direction, the spring is placed in tension with the corresponding direction and tends to rotate the drum therewith and means to hold the drum in contact position during a portion of the travel of said part in either direction and to then release the drum whereby the segments snap from one contact position to another, substantially as described.

817,771. Tire for Wheels. Hans Maerker, Wiesbaden, Germany. Filed Aug. 28, 1905. Serial No. 276,071.

Claim.—1. In an elastic tire for wheels, in which the elastic tire proper is composed of a plurality of segments and of a like number of carriage springs, each of which has its ends connected with one of said segments, and its middle portion secured to the inner or rigid tire of the wheel, the combination with each segment and its apurtenant spring, of yokes fixed to the inner side of the segment, and adapted to receive the ends of the spring, these ends being rebent outside of said yokes, and means adapted to prevent the spring with its segment from turning out of the plane of the wheel, said means being applied to the middle portion of the said spring, for the purpose as described.

818,815. Brake for Motor Cars. Rasmus Bugge, London, England. Filed March 25, 1905. Serial No. 251,988.

Claim.—1. In motor-cars, automobiles and other like vehicles, a brake consisting of a laterally-swinging bow, the arms of which are pivotally connected to the vehicle, a plate on the lowest point of said bow adapted to contact with the ground, means whereby said bow may be swung laterally to force said plate into contact with the ground, and operating means located within the vehicle actuating said last-mentioned

means whereby said plate may be set from within the vehicle.

818,828. Clutch. Rutgers S. Kasson, Wilmington, Del. Filed Jan. 15, 1906. Serial No. 296,077.

Claim.—1. In a clutch, in combination, a case presenting a substantially conical bore, a cone mounted in said conical bore, a shaft rigidly attached to said cone, a diaphragm attached to said case and lying adjacent to the end of said cone, and means for applying fluid-pressure to said diaphragm.

818,845. Transmission Mechanism. Edward Nelson, New York, N. Y. Filed July 19, 1905. Serial No. 270,406.

Claim.—In a transmission mechanism, in combination, a rotatable friction-disk, a shaft adapted to be driven therethrough, a second shaft in alinement with said first shaft, a friction-roller carried on said second shaft and engaging said disk to rotate the same, means for advancing said roller along its shaft, and a member carried by said first shaft and co-operating with said roller to constitute a clutch.

818,846. Vehicle Body. William W. Ogden, Chatham, and Walter C. Yelton, Newark, N. J., assignors to J. M. Quimby & Co., Newark, N. J. Filed Oct. 13, 1905. Serial No. 283,241.

Claim.—1. A vehicle-body having a wooden frame, a metal shell, said shell consisting of a plurality of separate panels and the frame comprising elements located behind the joints and between the panels and having grooves corresponding with said joints, and a molding or strip located on the outside of each joint and projecting into the groove in a corresponding part of the frame.

818,853. Carburetter. Louis Renault, Billancourt, France. Filed May 29, 1905. Serial No. 262,888.

Claim.—1. A carburetter comprising a mixing-chamber, a spraying nozzle provided with a plurality of outlet-passages of different lengths, said passages communicating with the mixing-chamber and a hydrocarbon-supply, a funnel-shaped member arranged within the mixing-chamber, a vertically-movable disk arranged within the mixing-chamber, a cylindrical member carried by said disk, positioned within said funnel-shaped member and having openings in the side thereof, and means carried by said disk for closing certain of the outlet-passages of the nozzle and for establishing communication between the passages and the atmosphere.

818,857. Wheel for Vehicles. Gustave A. Schultz, Hawkeye, Iowa. Filed April 17, 1905. Serial No. 255,971.

Claim.—1. A wheel embodying in its structure a series of springs, rotatable means for simultaneously increasing or diminishing the resilient area of the springs, and means for preventing movement of said means laterally in relation to the wheel.

818,863. Tire. Isaac N. Bowen, Lead, S. D. Filed May 17, 1905. Serial No. 260,330.

Claim.—1. A tire comprising a U-shaped rim, a plurality of tread-sections telescopically connected together, each of said sections comprising a tread portion and side plates projecting therefrom and having one end reduced internally and the other externally, said side plates being designed to fit over the U-shaped rim and rest against the outer surface thereof, means adjustably connecting said side plates to the rim, and springs secured within the rim and bearing against the tread portion of the sections.

818,898. Variable Speed Mechanism. Geo. W. Marble, Chicago, Ill. Filed Dec. 7, 1904. Serial No. 235,866.

Claim.—1. The combination with a transmission-shaft, of a friction-disk rigidly secured thereon, a driving shaft, oppositely rotating friction rollers driven thereby and adapted to engage opposite faces of the driven friction-disk, a yoke, non-rotative collars pivotally engaged thereon in which said rollers are journaled and means for shifting said rollers into and out of engagement with the disk.

818,962. Motor Plow. Alonzo J. Holland, Hypoluxo, Fla. Filed May 31, 1905. Serial No. 263,100.

Claim.—A motor-plow comprising laterally-spaced beams, an integral frame provided with shovels secured to the beams on their narrow sides, said frame comprising an enlarged rear portion and a narrowed forward portion, said forward portion including parallel sides connected at their ends by an integral end portion, a motor-support connecting the sides intermediate and rear portion of the frame and the said end portion, bearing-blocks formed on the sides of the frame adjacent the end portion, an axle mounted in said bearing-block, traction-wheels mounted on said axle, a sprocket-wheel carried by each of said traction-wheels, a motor mounted upon the said motor-support, sprocket-wheels carried by the shaft of the motor and a chain connecting each pair of sprocket-wheels.

818,967. Automobile Steering Device. Charles F. Jenkins, Washington, D. C., assignor of one-half to Charles C. Dieudonne, Washington, D. C. Filed Oct. 19, 1905. Serial No. 283,423.

Claim.—1. The combination, with the running gear of an automobile, of a suitable power device connected with the steering-wheels, a steering-head connected also with the steering-wheels to turn them in either direction, and means whereby the operation of the steering head shall automatically throw the power devices into and out of action.

819,014. Portable Turn-Table. Charles W. Hilleinbrand, Kansas City, Mo., assignor of seven-eighths to Nathaniel C. Barnes, Kansas City, Mo. Filed Nov. 6, 1905. Serial No. 286,018.

Claim.—1. A turn-table consisting of a centrally-disposed track, trucks arranged to travel in a circle thereon, supporting-arms carried by the trucks, and a pair of runways carried by said arms.

819,036. Cushion Tire. Frank M. Ashley, New York, N. Y. Filed Aug. 3, 1903. Serial No. 167,984.

Claim.—1. A tire portion comprising yielding side walls contributing to form an inner recess, radial walls integral with and laterally disposed, said radial walls being integral with a tire portion in the inner side thereof and presenting interiorly-extended transverse edges containing transversely-extended radial arches forming a clearance of space for promoting the movements of the tire under tread compression, and a radial longitudinal web intersecting the radial walls and extending continuously from the roof of the arch to the top of the tire portion.

819,039. Vehicle Wheel. Marcellus Bunker, Woburn, Mass. Filed Oct. 26, 1905. Serial No. 284,409.

Claim.—1. A vehicle-wheel comprising in its construction a rim, a series of blocks adapted to slide radially to said wheel, the outer end of each of said block, respectively,

projecting outwardly beyond the periphery of said rim, each of said blocks having a radial post in the interior thereof surrounded by an annular recess, a series of radial pins each projecting into a recess, a spiral spring located in each of said annular recesses encircling said post and acting to move its respective block outwardly, and means to limit the extent of said outward movement.

819,089. Gas Turbine. Charles W. Shoenmaker and John M. Lithgow, Allegheny, Pa. Filed April 14, 1904. Serial No. 203,186.

Claim.—1. In a gas engine the combination, with a power-shaft and impact-surfaces in operative connection therewith, of an explosion chamber provided with an inlet-port through which gas is received and with a discharge port through which the products of explosion are delivered to the impact-surfaces, means for exploding gas in said explosion-chamber to move in uniform direction to open and close said inlet-port prior to explosion and to open and close said discharge-port subsequent to explosion, substantially as described.

819,116. Valve and Ignition Mechanism for Internal-Combustion Engines. Herbert Austin, Birmingham, England, assignor to the Wolseley Tool and Motor Car Company, Limited, Birmingham, England. Filed March 5, 1904. Serial No. 196,721.

Claim.—1. An internal-combustion engine, having a valve to be opened, a rod, slidable in guides, for opening the said valve, said cam having in its operative edge a special recess, a spring which holds said rod in operative relation with the cam, a laterally-projecting part on the said slidable

rod, a fixed electric contact, a spring which holds said contacts normally in touch with other, a movable contact-actuating arm in the path of said lateral projection on the rod and adapted to be actuated thereby when the spring on the rod moves the end of the latter into the recess in the cam to produce a spark between the contacts when said moveable arm is actuated.

819,118. Variable Speed Gear. William Baines, Crosby, England. Filed May 31, 1904. Serial No. 308,034.

Claim.—1. In a motor vehicle rotary variable speed or power gear, a part for transmitting the motion, movable away from, and toward the axis; a carrier for said part; a flexible band connected with said part, and passed to the center of the gear, and adapted to be operated therefrom; a hollow shaft carrying said carrier; and manually-controlled means connected with said hollow shaft for moving said flexible connection; substantially as set forth.

819,148. Feeding and Igniting Mechanism for Explosion Motors. Franz R. Lorenz, Gumbinnen, Germany. Filed Nov. 3, 1904. Serial No. 234,569.

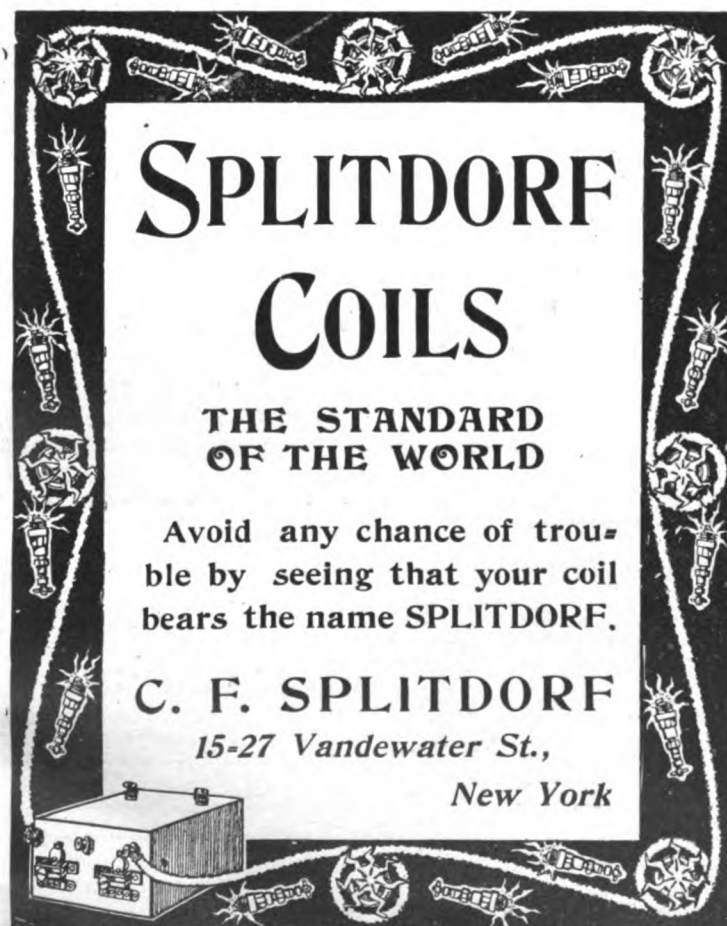
Claim.—1. In an explosion-motor worked by solid explosive, the combination with the motor-cylinder, of an axially-slidable feed disk having equally-spaced perforations equidistant from its axis, means for rotating the feed-disk intermittently so as to bring each perforation in turn in coincidence with the inlet-orifice of the explosion-chamber of the motor-cylinder, a screw conveyor for charging the perforations of the feed-disk in succession in the intervals between the partial revolutions of the feed-disk, means for rotating said conveyor intermittently, means for automatically regulating

the speed of said conveyor, means for optionally varying the speed of said conveyor, means for separating the charge of explosive in the perforations of the feed-disk and said conveyor, an anvil-plate having a firing-hole opening into each perforation of the feed-disk when the same is in coincidence with the explosion chamber, means for pressing the feed-disk into gas-tight contact with the said-explosion chamber just before and during the explosion, means for feeding a chain of detonators intermittently through said anvil-plate, a firing-pin for exploding each detonator as it comes in coincidence with the said firing-hole, and means for cocking and releasing said firing-pin, substantially as set forth.

819,156. Appliance for Putting Tires on the Rims of Vehicles. Leon G. Morrill, Norwood, Mass. Filed March 11, 1905. Serial No. 249,572.

Claim.—1. The combination in an appliance for putting tires on vehicles of a hook member having a hook portion at one end and a pivot portion near its end; a lever pivoted at one of its ends to one end of the hook member; a pusher member pivoted at one end to the lever and arranged to move longitudinally of the hook member, said pusher member having a head laterally extending therefrom, and arranged to overlap the hook of said hook member the pivots in all said members being so arranged as to lock the pusher member against longitudinal movement when the lever is pushed upward against the hook member.

819,159. Storage Battery Jar. Roger M. Newbold, Louisville, Ky., assignor to The Adams & Westlake Company, a corporation



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FRANK H. REED,
Gen. Pass. Agt., Chicago.

CHAS. H. ROCKWELL,
Traffic Man.

of Illinois. Filed April 24, 1905. Serial No. 257,145.

Claim.—1. A battery jar closure comprising, in combination, a rigid plate, and a soft flange projecting from the margin of the plate and inclined upwardly from the plate thereof, whereby the flange presents a flat face to the walls of the jar.

819,184. Anti-Friction Bearing. William Thornton, Chattanooga, Tenn. Filed Oct. 20, 1904. Serial No. 229,292.

Claim.—1. Anti-friction bearing comprising a fixed member having an annular recess therein, a rotary member provided with a cylindrical portion mounted in said recess, elongated rollers in said recess between the members having contracted ends seated upon the base of the recess in the fixed member, and means for sustaining the rotary member free of the other ends of the elongated rollers.

819,213. Reversible Power Transmission Gear. Ole O. Furr, St. Paul, Minn., assignor of one-half to Elias Cronstedt, St. Paul, Minn. Filed March 21, 1905. Serial No. 251,214.

Claim.—1. The combination, with a casing provided with bearing-boxes, of a worm-wheel mounted in said casing, a worm engaging said wheel, a shaft fitting within said worm, bearing-sleeves interposed between said shaft and boxes and having flanged outer ends, caps fitting over said flanges and forming dust and oil proof joints therewith, ball-bearings provided between said caps and sleeves, and said worm and worm-wheel operating in a chamber adapted to contain a body of oil and communicating with said ball-bearing through said bearing-sleeves, substantially as described.

819,244. Vehicle. Frederick J. Newman, Chicago, Ill., assignor to Woods Motor Vehicle Company, Chicago, Ill., a corporation of Illinois. Filed Jan. 9, 1905. Serial No. 240,304.

Claim.—1. In a vehicle, the combination of a running-gear frame, a spring-supported box-frame, a semi-elliptic transversely-disposed spring rigidly bolted at its central portion to one of said frames, slidably connected at its ends with the other frame, lateral guides embracing the ends portions of said spring to confine the latter against lateral displacement and a longitudinally-disposed elliptic spring at each end of said semi-elliptic spring having its upper and lower central portions rigidly united with the spring-supported frame and running-seat having an air-inlet portion formed with chamber portion formed with an interior gear frame respectively.

819,258. Internal Combustion Engine. Carl W. Weiss, Brooklyn, N. Y. Filed Mar. 6, 1902. Serial No. 96,878.

Claim.—A frame for an explosive engine comprising a base, an independent crank-an interior seat having an air-inlet port in said seat and a finished face, and an independent cylinder portion formed with a finished face to fit the finished face of the crank-chamber portion and having an extension fitting closely within said seat in the crank chamber portion with a port arranged to be covered by the piston registering with the air-inlet port in said seat, said crank-chamber portion and said cylinder portion having other registering ports in their respective finished faces and an exhaust-port in the cylinder portion arranged to be covered by the piston, substantially as described.

819,283. Sparking-Igniter-Adjusting Device for Explosive Engines. Thomas B.

Jeffery, Kenosha, Wis. Filed March 20, 1905. Serial No. 251,168.

Claim.—1. In an explosive engine in combination with a valve for controlling the supply of motive fluid, a contact making and breaking device comprising a rotatable element and an adjustable element; movable devices for operating the supply-valve; a flexible cable connecting the said supply-valve-operating devices and the adjustable element of the contact device, and a guide about which the same passes located for causing said adjustable element to be moved positively in direction for delayed ignition by the valve-closing movement of the valve-operating devices, and a spring for retracting said adjustable element upon the reverse movement of said devices.

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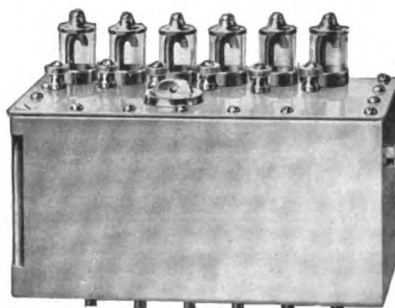
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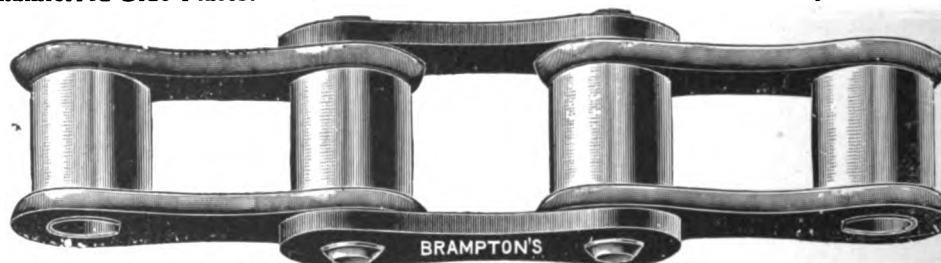
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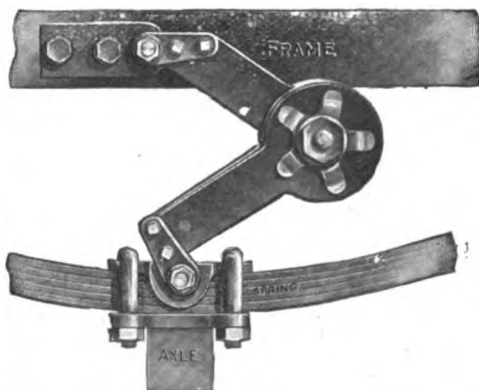
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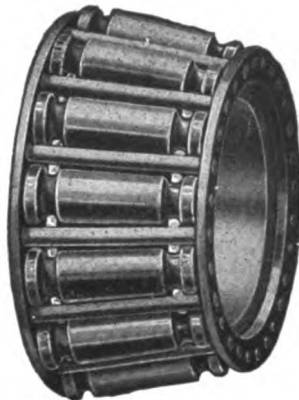
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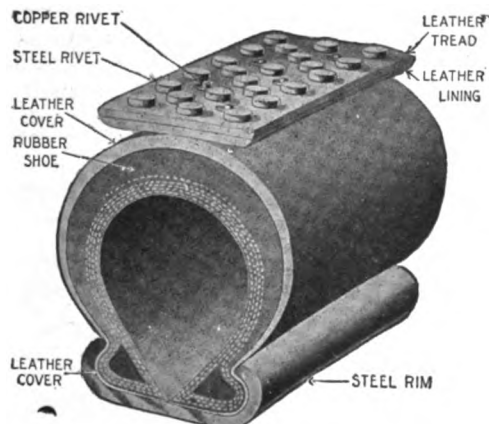
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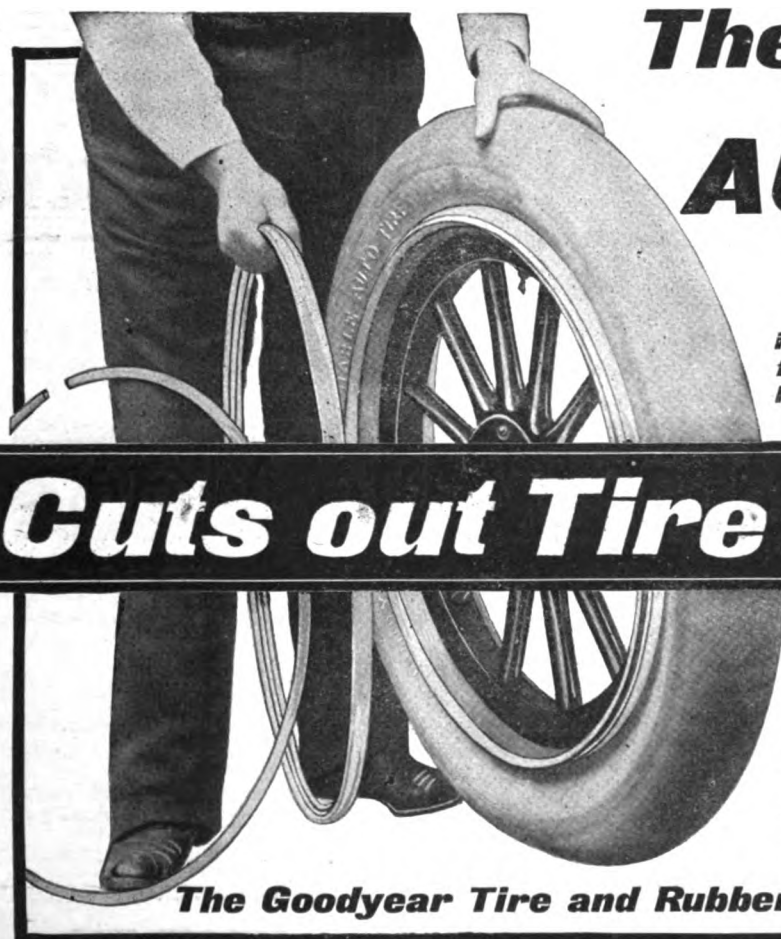
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The **GOODYEAR** *Detachable* **AUTO-TIRE** *ON* **Universal Rim**

is so durable yet so lively—so difficult to puncture yet so easy to Repair—that it really

Cuts out Tire Troubles

Call and see a demonstration at any of the following branches—it will convince you.

Boston, 261 Dartmouth St.
New York, cor. Sixty-fourth St. and Broadway.
Chicago, 82-84 Michigan Ave.
Cincinnati, 242 E. Fifth St.
St. Louis, 712-714 Morgan St.
Los Angeles, 932 So. Main St.
Oakland, Geo. P. Moore & Co., 377 10th St.
Buffalo, 719 Main St.
Denver, 220 Sixteenth St.
Detroit, 242 Jefferson Ave.

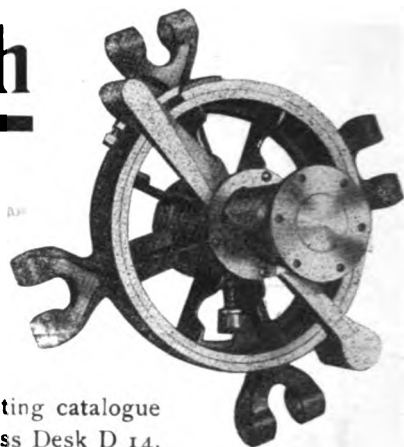
The Goodyear Tire and Rubber Co., Grove St., Akron, O.

HAYNES Master Clutch

In the HAYNES Master Clutch a cam controlled by a foot lever constricts a band which is keyed to the transmission shaft, on the face of a 10 1/4-inch pulley, the four forked arms of which extend to the inner rim of the fly wheel, on which are cast four lugs, one resting between each fork. Very stiff coil springs are fitted one on each side between the lugs and the forks. The stiff coil springs effectually cushion the transmission, driving mechanism and all keys from the shocks and racking effect caused by the sudden application of high power, and greatly prolong the life of the entire machine. The

operator can "pick up" the car without a jar or tremor, a sudden jerk, as is common with the cone and several other types of clutches, being impossible.

The HAYNES is the highest - powered shaft-driven car built. In requesting catalogue for prompt attention, address Desk D 14.



HAYNES AUTOMOBILE CO. Kokomo, Indiana.

CHICAGO: 1420 Michigan Ave.
NEW YORK: 1715 Broadway.
Members A. L. A. M.



"The Car the Repairman seldom sees."

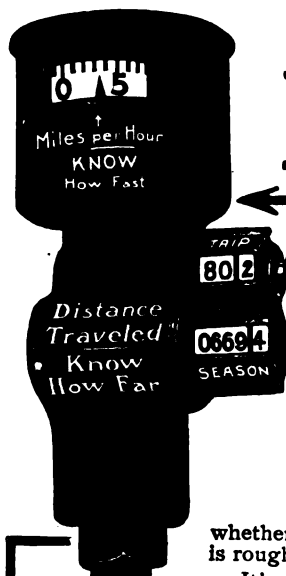
Model "R" Four-Cylinder Touring Car.

Vertical roller-bearing engines. Cylinders cast separately, 5 1/2 x 6-inches, 50 H. P. An exclusive transmission that absolutely prevents stripping of gears. Positive cooling system. Individual and special lubrication. Master Clutch has metal faces and takes hold without jerking. Shaft drive. Exclusive universal joints that prevent wear on pins. Sprocket and Roller Pinion and perfect Rear Axle, all exclusive. Roller-bearings throughout. 108-inch wheel base, 54-inch tonneau, seating five people. From 40 to 60 miles an hour on high gear. Weight, 2,750 pounds. Price, \$3,500 f. o. b. Kokomo. Full equipment.

Model "O" Four-Cylinder Touring Car

Cylinders cast in pairs 4 1/2 x 5-in., 28 to 30 H. P. Transmission, cooling system, lubrication, master clutch, shaft drive, universal joints, sprocket, roller pinion and roller-bearings and body same as on Model "R." 97-inch wheel base. 4-inch tires. Tonneau seating three persons. From 40 to 40 miles an hour on high speed. Price, \$2,250 f. o. b. Kokomo. Full equipment.

Absolutely Accurate— Reads from the Seat



An accurate speed and distance indicator is quite as necessary on your AUTOMOBILE as a watch is in your POCKET.

Furthermore, it must be ABSOLUTELY DEPENDABLE under all conditions of heat, cold or position. Otherwise a speed indicator is not worth the space it occupies. Isn't that so? You can always depend on

The Warner Auto-Meter

whether you go slow or fast, whether the road is rough or smooth, hilly or flat.

It's the only indicator which is ALWAYS absolutely infallible at SPEEDS UNDER TEN MILES PER HOUR, and any other speed.

It's the only indicator which gives correct readings in ANY POSITION, no matter what the angle of your car.

The Auto-Meter is the only indicator you can READ with certainty, because the dial changes with the SPEED ALONE, and is uninfluenced by the jar of the car.

The Warner Auto-Meter has all these EXCLUSIVE good points—because it is the ONLY speed indicator which is actuated by the same FIXED, UNCHANGEABLE MAGNETISM which makes the Mariner's Compass reliable and dependable FOREVER under all conditions.

No one else can successfully use magnetism to determine the speed of an automobile, though it's the only POSITIVE and SURE way, because there is only just ONE WAY that magnetism can successfully be used for this purpose, and WE HAVE PATENTED THAT WAY.

The Warner Auto-Meter will last a life-time. It's as sensitive as a compass and as SOLID AS A ROCK. It will withstand any shock that your CAR will stand without the SLIGHTEST INJURY and without affecting its ACCURACY in the slightest degree.

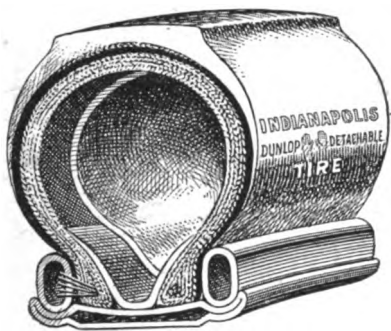
We will gladly tell you more about this wonderful instrument if you will write us, and at the same time will send you something every motorist will prize—our

Free Book, "Auto Pointers."

Write for particulars TODAY—don't put it off.

THE WARNER INSTRUMENT CO., 283 Roosevelt Street, BELOIT, WIS.

(The Auto-Meter is on sale by all first-class dealers and at most Garages.)



Indianapolis Dunlop Tire

**WE MAKE THIS TIRE
of the same good quality
and the same construction
as the 1906 G & J**

**RAISED TREAD
OPEN STEAM CURE
FLAP**

**and the flap is a great
thing in the Dunlop—pro-
tects the tube from the rim;
makes the tire easy to
handle.**

G & J TIRE CO.
Indianapolis.

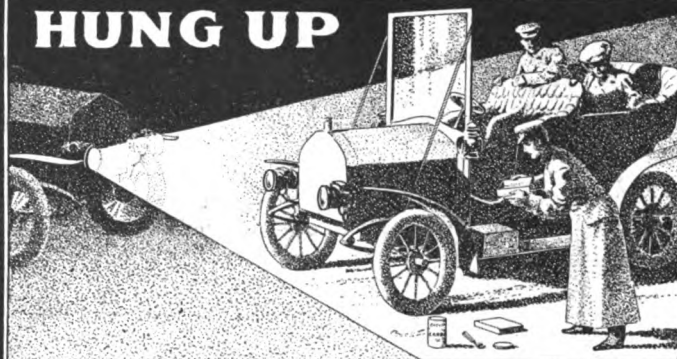
Depots:

Chicago Buffalo Detroit Cleveland
Boston Denver Oakland, Calif., 399 12th St.
Philadelphia New York, 10 W. 60th St.

Distributing Agents:

Plant Bros., Minneapolis
Keats & Co., Portland, Or.
Ramsay-Hutchins Rubber Co.,
Los Angeles

HUNG UP



**Ever see anything like what's happening to the
man on the right, Mr. Motorist?**

And, when a man pays from \$1,000.00 to \$5,000.00 for a Motor Car, with an engine worth a fifth of the whole cost, body worth a tenth, wheels a twentieth and so on—all equally necessary to giving him the pleasure he expects to get for his money—isn't it just a little inconsistent to economize (?) on light which costs but 1 per cent of the total utility, and a risk of 50 per cent of all the pleasure?

For the best light apparatus costs only about a hundredth part as much as the rest of the car and on it depends just about one half of all the enjoyment you can expect to get. Any Motorist will tell you that there is nothing to compare with the exhilaration of a speedy light ride.

But you cannot really enjoy it unless you have confidence and are without thought of danger. Clear light on the road is your protection against accident. With it, you are sure—confident. Without it, fear handles your steering gear.

And the one and only way to be sure of good, clear, dependable light, always, is to get your gas ready made and ready to use.

Send for our Pres-O-Lite book "Ready Made Gas for Auto Lights" and read how you can really economize on light and, at the same time, be rid of jiggling carbide forever. There are over 1,000 Pres-O-Lite tanks in use today and over 400 Recharging stations in the United States. You can exchange empty tanks for full ones at any of the stations by paying the cost of re-charging, and the change can be made in five minutes.

We want every Motorist to have a copy of our Pres-O-Lite book. Let us send you the book with our compliments and write you a personal letter about the light.

THE PREST-O-LITE CO. Department 168, Indianapolis, Ind.

ELECTRIC WELDING

the method that should interest
those in the manufacture of
articles constructed of iron or
steel for

AUTOMOBILES.

THE STANDARD WELDING CO.

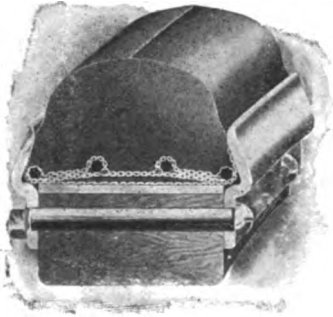
CLEVELAND.

Western Representatives:

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1064 Monadnock Block,
CHICAGO.

Eastern Representative:

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Havemeyer Building,
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SINGLE
FOR LIGHT WORK

HARTFORD

SINGLE and TWIN

SOLID TIRES



TWIN
FOR HEAVY WORK

Note Method of Attachment.

The successful commercial vehicle tire must have its retaining device vulcanized inside the tire, otherwise the attachments rust. The HARTFORD is secure and rust-proof.

THE HARTFORD RUBBER WORKS CO., Hartford, Conn.

Branches :

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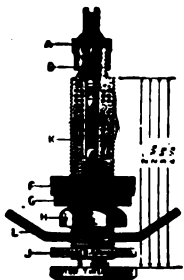
PHILADELPHIA
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DENVER
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SCHRADER UNIVERSAL VALVE.

Trademark Registered.

SIMPLE AND ABSOLUTELY AIR TIGHT.

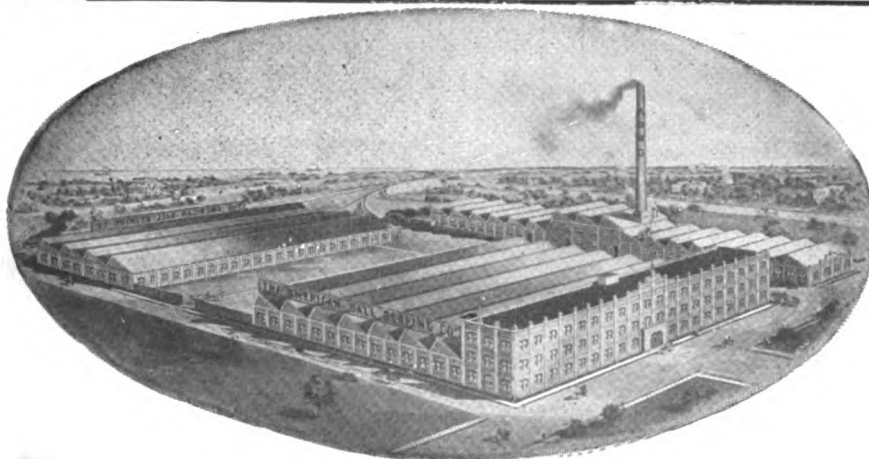


MOTOR TIRE VALVES, as shown in cut, are made in four lengths as shown. Cut is exactly half size of the 2 in. valve.

SUPPLIED TO THE TRADE BY ALL TIRE MANUFACTURERS.

MANUFACTURED BY

A. SCHRADER'S SON., Inc., Nos. 30-32 Rose Street, New York

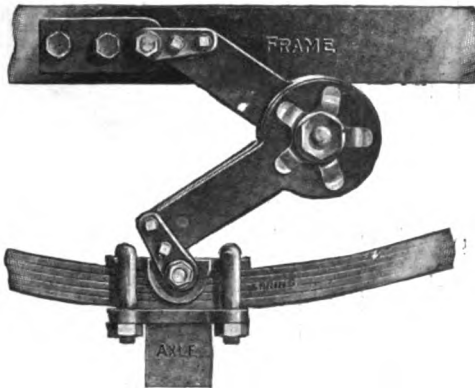


The output of complete Front and Rear Automobile Axles of this plant exceeds the capacity of all competition combined.

THE American Ball-Bearing Co.,

L. S. & M. S. Ry. & Edgewater Park,
CLEVELAND, OHIO, U. S. A.

IMPROVED TRUFFAULT-HARTFORD SHOCK ABSORBER TRADE MARK



Increases the speed and prevents lost traction.

Obviates the necessity of slowing down for obstructions.

Absolutely prevents breaking of springs.

The Truffault-Hartford may cost a little more than the numerous imitations and experiments; but, when every test has proven its superiority, does it pay to buy anything but the best? 98% of all Shock Absorbers in use are Truffault-Hartford.

Self-adjusting—Requires no attention. Makes the car ride like a baby carriage. Wears longest.

Adopted by the Pierce Great Arrow, Locomobile, Matheson, Richard-Brasier, Peugeot, Napier, Gobron-Brillié, Studebaker

Cars under 1500 lbs \$40
(four suspensions)

Cars over 1500 lbs. \$60
(four suspensions)

WARNING

We are the owners of fundamental patents entirely covering every practicable form of frictional retarding devices for vehicle springs and hereby warn the trade from handling any infringing device that may be offered for sale. We also warn the trade against the use of the term "Shock Absorber" which is our Trade Mark.

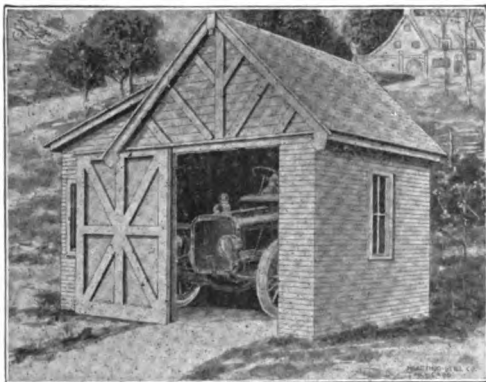
HARTFORD SUSPENSION COMPANY

E. V. Hartford, Pres.

67 Vestry Street, New York.

WE ARE SOLE AMERICAN AGENTS FOR THE CELEBRATED
COBRON-BRILLIÉ,
"THE FINEST AUTOMOBILE IN THE WORLD."

AUTOMOBILE HOMES LINED WITH PATENT FIREPROOF PLASTER



This Style Complete \$100.
Will Accommodate any Tonneau and Top.

After you buy your motor car the first thing is to provide a place to keep it. **We have them.** A descriptive catalog will be sent to automobile owners. **Write Today for Booklet No. MII.** We have been making Portable Houses for Universities and large Institutions all over the country to their satisfaction.

We Can Suit You and Save You Money.

These homes are built in sections and are shipped knocked down and can be put together in two hours by any one who can use a screw driver.

They are Constructed of the best Southern Pine, dry seasoned, perfectly matched, weather and wind proof, only needing painting, to be an ornament when placed in position on any lawn. Other houses built of sheet steel from \$50.00 upward.

An Automobile Home is one-third of the expense of garage charges. We build Greenhouses, Summer Cottages and every description of Portable House.

CHARLES H. MANLEY,

Premier Manufacturing Works,

Motor Dept.

ST. JOHNS, MICHIGAN.

The Incomparable WHITE The Car for Service.



"WHAT PEOPLE SAY ABOUT THE WHITE STEAM CAR."

The above is the title of a booklet which has just been issued, containing some two score letters from White owners, relating their experiences with their machines. These letters describe, much more eloquently than we could ourselves, the qualities which have made the White the most popular car in the country. A few quotations follow:

"Nothing ever happens to it."

"Do not spend in care to exceed one hour per week."

"Convinced that the White is the safest on the market."

"Repair expenses for 12,000 miles, \$17.25."

"I have forgotten what automobile troubles are."

"The White principle is a stroke of genius."

"Quickly learned to use it without needing a chauffeur."

"Fit to go anywhere and surmount anything."

A copy of this instructive booklet will be sent on request.

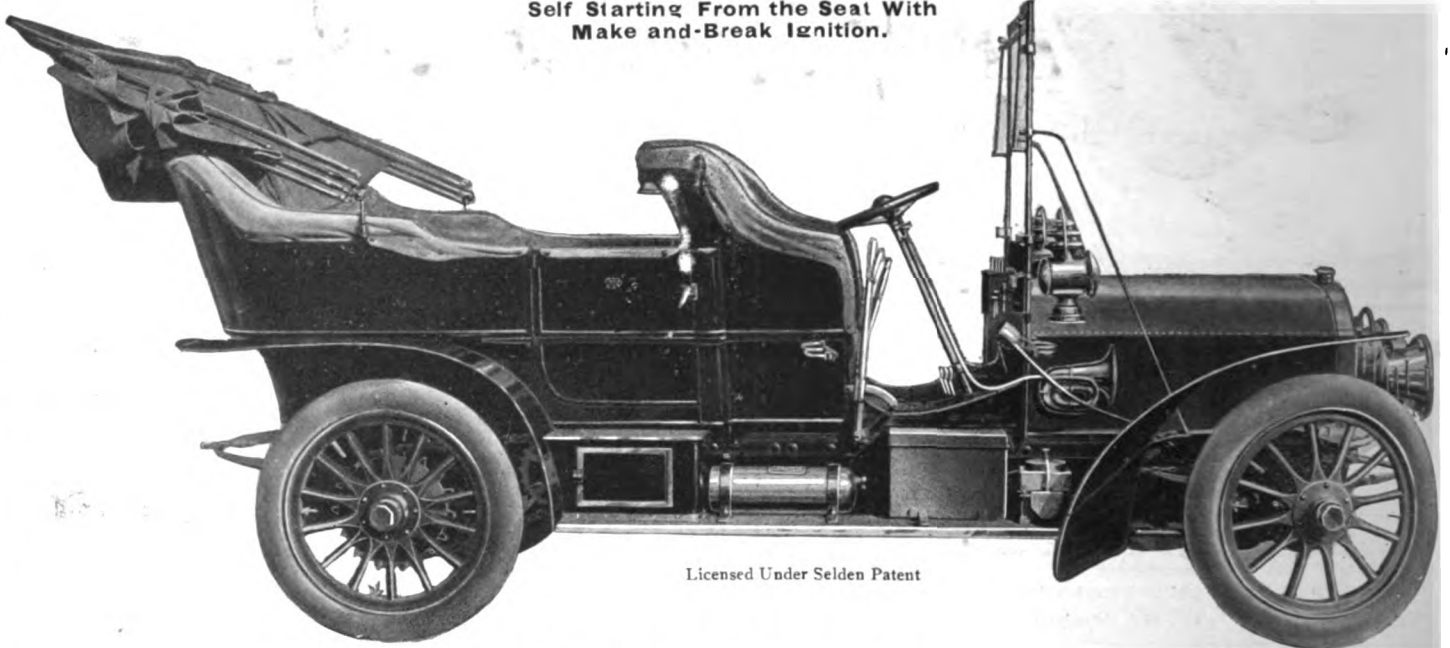
WHITE SEWING MACHINE COMPANY
CLEVELAND, OHIO

CHROME-NICKEL STEEL
used throughout in
construction of shafts,
transmission and gears.

Matheson

HESS-BRIGHT IMPORTED
— ball-bearings secure
perfect transmission of
power from engine to
wheel.

Self Starting From the Seat With
Make and-Break Ignition.



Licensed Under Selden Patent

THE MATHESON COMPANY OF NEW YORK,

FACTORY, WILKES-BARRE, PA.

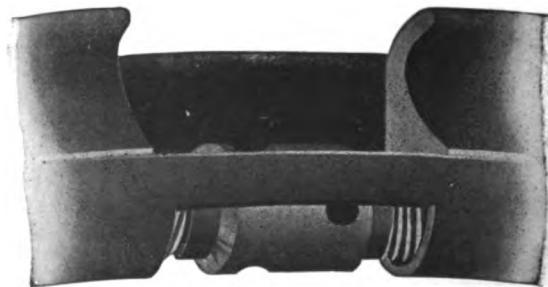
1619 BROADWAY, near 49th Street.

ONE YEAR GUARANTY.

Pioneer Steel Wheel and Universal Rim Manufacturers of the World

Our Output of Detachable Bead Rims is Greater than
the entire Output of all other Makers Combined

**Sole Makers of the HARTFORD UNIVERSAL RIM
for DUNLOP AND CLINCHER TIRES**



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The *Locomobile* Company of America, Bridgeport, Conn.

Member Association of Licensed Automobile Manufacturers

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WHY IS THE
ROYAL TOURIST
FAMOUS?
ASK AN OWNER.

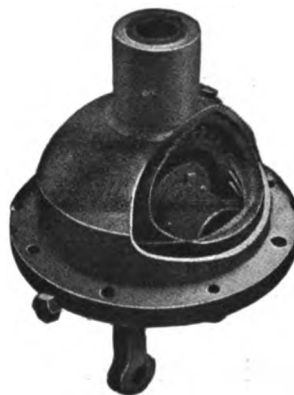
ROYAL

Model G. \$3500.00 40 H. P.

THE ROYAL MOTOR CAR CO.
Cleveland, Ohio.

AGENTS: C. A. DUERR & CO., New York, N. Y.; G. J. DUNHAM, Boston, Mass.; THE McDUFFEE AUTOMOBILE CO., Chicago, Ill.; G. W. CAPLIN, Minneapolis, Minn.; AUTOMOBILE & SUPPLY CO., Ltd., Toronto, Ont.; MOTOR SHOP, Philadelphia, Pa.; REYBURN MOTOR CAR CO., St. Louis, Mo.; STANDARD AUTOMOBILE CO., Pittsburg, Pa.; AMOS-PIERCE AUTO CO., Syracuse, N. Y.; SCHOEFFEL CO., Rochester, N. Y.; ROYAL MOTOR CAR AGENCY, San Francisco, Cal.
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BROWN-LIPE GEARS



Irreversible Steering.
Bevel and Chain Drive
Differential.
Many Sizes and Models.
Sliding Gear Transmission.

(Latter all sold for present.)

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Branches in Philadelphia, Boston, } Sales Agent
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BROWN-LIPE GEAR CO., 200 S. Geddes St., Syracuse, N. Y.

MICHELIN

Tires of High Class Only.

All uniform and guaranteed perfect.

Michelin does not make seconds.

If you are having trouble with other tires try Michelin.

MICHELIN PRODUCTS SELLING COMPANY, Inc.,

EXCLUSIVE AMERICAN AGENTS

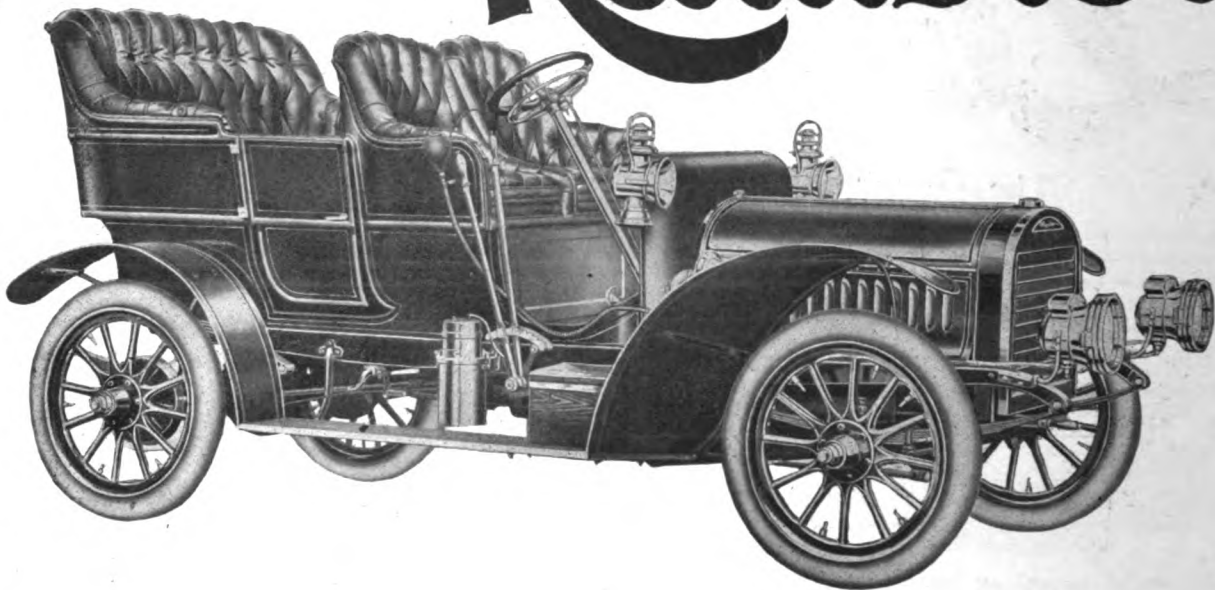
E. D. WINANS, Gen'l Manager.

31-33 West 31st Street, New York

Telephone 5560-5561 Madison Square.

Model 14 Rambler

\$1750.



A Car of Utility, Power and Service

The highest possible grade of raw material worked into a modern touring car by the best of workmen after the design of skilled and experienced engineers.

Every component feature, whether of great or little importance, is made of metal especially selected and designed for the purpose.

In design and workmanship but one consideration obtains, *The Best*.

These conditions, backed by the enormous facilities of the greatest automobile factory in the world, result in a car that is *right* from its inception to the end, and the volume of our output enables us to present to the public

The Right Car at the Right Price.

Main Office and Factory: KENOSHA, WIS.

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Thomas B. Jeffery & Company

THE MOTOR WORLD.

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE
AND KINDRED INTERESTS

Volume XII.

New York, U. S. A., Thursday, May 17, 1906.

No. 16

THE EXHIBITS AT EMPIRE

**Those who will Display their Wares at the
Open Air Show.**

In the matter of variety and instructiveness of entertainment and competition, the program of the New York Automobile Trade Association's open air show and carnival at Empire City track, May 24-26, has already made plain that in that respect nothing will be lacking. The closing of the list of exhibitors this week makes as clear that the exhibition part of the carnival will be fairly representative. Those who have booked space are as follows:

Motor Cars.—Smith & Mabley, White Sewing Machine Co., Cryder & Co., Covell & Crosby Motor Co., Oldsmobile Co. of New York, New York Motor Car Co., Darracq Automobile Co., E. T. Kimball & Co., Ardsley Motor Car Co., Aerocar Company, A. G. Spalding Bros., Majestic Auto Co., Wayne Automobile Co., Rainier Company, Matheson Co., Reo Motor Car Co., Peter Fogarty, Nielson Motor Car Co., Maxwell-Briscoe Motor Car Co., Winton Motor Carriage Co., New Amsterdam Motor Co., Auto Import Co., Theo. E. Shultz, Decauville Auto Co., Cadillac Co. of New York, Advance Motor Co., H. J. Koehler Co., Frayer-Miller Co., De Dietrich Import Co., C. A. Duerr & Co., Welch Motor Car Co., P. A. Fogarty, Homan & Schultz, George J. Scott Motor Co.

Accessories.—Raines & Co., Eastern Carbon Works, Connecticut Telephone & Electric Co., Pennsylvania Rubber Co., R. & P. Traction Tread Tire Co., E. T. Kimball Co., Allen Bag & Specialty Co., Duplex Ignition Co., Diezemann Shock Absorber Co., Hartford Suspension Co., Gaither-Owen Carburetter Co., Jacob Veith, Michelin Products Selling Co., Newcomb Carburetter Co., Mutual Accessories Co. of America, Haver-meyer Oil Co., Vorhees Rubber Mfg. Co., Vacuum Oil Co., Acme Autometer Co.

Shake-up in New York Autocars.

The Metropolitan Motor Car Co., who handled the Autocar in New York and vicinity, are going out of business, as the

result of a nine-day flare-up that has kept eastern trade tongues wagging.

The first that was known of the trouble was the publication by the Metropolitan Co., in which the well-known S. F. Randolph is the active man, of a spreadeagle advertisement in the New York papers reflecting on Autocars and their makers. Then followed reports that a disputed account was at the bottom of the trouble. At any rate, it is certain that the Autocar Co. took drastic action as a result of which their account was quickly paid and their agency transferred to the Atlantic Motor Car Co., which was formed for the purpose and which will locate at 138 West 38th street, as soon as the premises are vacated by the Reo branch which is about to be removed to 40 West 60th street. R. T. Newton is the manager and responsible man of the Atlantic Co., which was organized by himself and his associates in the Motor Car Co. of New Jersey, which handles Autocars in Newark and the adjacent territory. The Newark store will be managed by Inglis Upperen.

Dunham Becomes Olds's Engineer.

George W. Dunham has been appointed chief engineer of the Olds Motor Works to fill the vacancy caused by the resignation of H. E. Coffin. Mr. Dunham is no stranger to the duties or to the Olds product, his appointment being in the nature of a promotion. Previously he was Mr. Coffin's right hand man and shared with him all of the engineering plans and projects undertaken by the Olds people.

Gibson to Manufacture Here.

Hugo C. Gibson, inventor of the Gibson Power Indicator, has come to this country and established headquarters for the sale of the indicator at 194 Broadway, New York City. As soon as possible, Mr. Gibson will arrange for the American manufacture of the device, which is quite ingenious and which may be attached to any engine.

Billings & Spencer to Enlarge.

The Billings & Spencer Co., the Hartford drop forgers, have purchased two plots of ground on which will be erected a large addition to their present plant; the plans, however, are not yet wholly complete.

POPE TO QUIT SAN FRANCISCO

**Branch there will not be Re-established—
Decision Reached Before the Disaster.**

In the reconstruction of San Francisco there will be one notable automobile establishment that will be missing, that of the Pope Mfg. Co.; it will not be continued.

The branch and its effects were completely wiped out by the fire that followed the earthquake, but as a matter of fact the disaster had nothing to do with the Pope decision to discontinue direct factory representation on the Pacific coast, and to transfer their agencies to local houses. This conclusion had been reached previous to the catastrophe, but the latter, of course, has greatly, if expensively, simplified the transferral.

Col. George Pope, treasurer of the Pope Mfg. Co., leaves this week for San Francisco to settle the matter of insurance, and also to wind up the other affairs of the branch.

P. H. Burneys, who has been the Pope manager on the coast for very many years, handling both their bicycles and their motor cars, will be retained by the company until everything is thoroughly liquidated, but just who will secure the Pope agency is among the things to be determined.

Accessions to New York Association.

At the last meeting of the governors of the New York Automobile Trade Association, the following firms were elected to membership: Hartford Suspension Company, Maxwell-Briscoe Motor Company, Matheson Company of New York, Covell & Crosby Motor Company, Wayne Automobile Company of New York, Frayer-Miller Motor Company and the Lozier Motor Company.

Dunn to go to San Francisco.

Harry T. Dunn, president of the Fisk Rubber Company, leaves this week for San Francisco to assist in the re-establishment of the Fisk branch in that city. Mr. Dunn has made the cross-continent journey so often during the last three years that when he now undertakes the trip it seems almost a matter of course.

The Week's Incorporations.

Sandusky, Ohio.—The Sandusky Automobile Co. reduced its capital stock from \$150,000 to \$15,000. J. J. Hinch, president.

Pittsburg, Pa.—Atlas Automobile Co., under Delaware laws, with \$200,000; to manufacture and deal in automobiles. Corporators not named.

Brooklyn, N. Y.—Grant Square Automobile Co., under New York laws, with \$20,000 capital. Corporators—C. F. Bott, Frank Wilson and W. Weston, all of Brooklyn.

Springfield, Mass.—Flexible Tire Co., under Massachusetts laws, with \$60,000 capital. Corporators and officers—William G. Marr, president; R. J. Talbot, treasurer.

Chicago, Ill.—O'Neill-Ollier Co., under Illinois laws, with \$10,000 capital; to manufacture automobile equipment. Corporators—Charles C. O'Neill, L. F. Ollier and S. E. Gillard.

Passaic, N. J.—Passaic Motor Car Co., under New Jersey laws, with \$50,000 capital; to deal in automobiles. Corporators—J. B. Ryall, A. W. Ryall and G. Ryall, all of Passaic.

Portland, Me.—Railway Auto Car Co., under Maine laws, with \$700,000 capital. Corporators—Millard W. Baldwin, president; Clarence E. Eaton, treasurer, both of Portland.

Brooklyn, N. Y.—Willing Garage Co., under New York laws, with \$10,000 capital. Corporators—Herbert O. Hyatt, Edward H. Bancker and George E. Austin, all of Brooklyn.

Denver, Col.—Automobile Rental Co., under Colorado laws, with \$50,000 capital. Corporators—G. G. Bloom, E. Owens, A. P. Smith, S. H. Hammond and O. O. Dohner, all of Denver.

New York City, N. Y.—George H. Terry Co., under New York laws, with \$25,000 capital; to manufacture motors and engines. Corporators—G. H. Terry, S. C. Smith and Arthur Thompson.

Boston, Mass.—Boston Auto Livery Co., under Massachusetts laws, with \$15,000 capital; to deal in automobiles. Corporators—A. Levrone, president; R. A. Waiteling, treasurer, both of Boston.

Birmingham, Ala.—Auto Scenic Co., under Alabama laws, with \$2,500 capital. Corporators—Harry Haynes, A. Max Boxer, A. E. Campbell, Louis Pizitz, T. W. O'Byrne and J. L. Cooper.

Cleveland, Ohio.—Holmes-Booth Automobile Co., under Ohio laws, with \$25,000 capital. Corporators—William N. Booth, E. H. Holmes, H. G. Dickinson, B. J. Erlanger and J. W. Smith.

Detroit, Mich.—The E. R. Thomas Detroit Co., under Michigan laws, with \$300,000 capital; to manufacture automobiles. Corporators—J. J. Brady, H. E. Coffin, Roy D. Chapin and Fred C. Benzen.

Camden, N. J.—Matthews Motor Co., under New Jersey laws, with \$75,000 capital; to deal in automobiles. Corporators—Lewis

N. Matthews, J. Morris Wister and Craig Harberton, all of Philadelphia.

Beverly, Mass.—North Shore Auto Passenger Co., under Massachusetts laws, with \$50,000 capital; to conduct automobile stage line. Corporators—S. Harvey Dow, president; U. G. Haskell, treasurer, both of Beverly.

Boston, Mass.—Augier Automobile Supply Co., under Massachusetts laws, with \$20,000 capital; to deal in automobile supplies. Corporators—H. M. Butler, Boston, president; O. M. Angier, Dorchester, treasurer.

New York City, N. Y.—New York and New Jersey Lubricants Co., under New York laws, with \$5,000 capital; to make and deal in lubricants. Corporators—T. A. Matthews, W. F. Kimball and F. J. Barnes, all of New York City.

Memphis, Tenn.—Memphis Automobile Co., under Tennessee laws, with \$10,000 capital; to deal in automobiles and conduct motor stage line. Corporators—E. B. Myer, A. L. Cross, E. L. Menanger, William Floyd and F. Zimmerman.

Columbus, Ohio.—Direct Drive Axle Co., under Ohio laws, with \$150,000 capital; to make automobile axles; formerly Columbus Auto Axle Co., with \$25,000 capital. Corporators—C. T. Phillips, W. E. Campbell, C. O. Haines, Irvin M. Pleukarp and J. R. Fassig.

Lexington, Mass.—Lexington and Concord Sight-seeing Co., under Massachusetts laws, with \$10,000; to deal in automobiles and conduct motor stage line. Corporators—George W. Taylor, president, Lexington; Henry F. Knight, treasurer, No. 50 State street, Boston.

Little Rock, Ark.—Little Rock Automobile Co., under Arkansas laws, with \$10,000 capital; to deal in automobiles. Corporators—E. P. Ladd, W. S. Mitchell, J. F. Rutherford, Jr., H. A. Bowman, J. F. Boyle, Jr., Morehead Wright, J. A. Van Etten, W. E. Green, Joseph Irwin, Thomas Lafferty, C. A. Pratt, Gabe Block, M. H. Johnson, C. B. Myers, Charles T. Caldwell, Guy C. Smith, W. B. Miller, T. H. Hutchinson, S. P. Scott, R. E. Farrell, E. B. Bloom, W. M. Kavanaugh, H. B. Ake, H. L. Bozart, F. O. Bowen, Theodore Treadway and Jeff Hicks.

New York Dealers Elect Reeves.

Alfred Reeves, than whom there are few men more widely or more favorably known, has been elected secretary of the New York Automobile Trade Association, succeeding W. P. Kennedy. The office is purely an honorary one, but it affords an abundance of scope for Reeves's talent and energy.

The New York and New Jersey Lubricant Co., who, it was reported, were making ready to remove to a Broadway address, state that the report was erroneous. They have no idea of leaving their present location, 14 and 16 Church street, New York.

Boston Dealers to Reorganize.

Plans for reorganization of the Boston Automobile Dealers' Association, which disbanded some time ago, are now being formulated, a committee having been appointed for the purpose of drawing up a new constitution and by-laws. The decision to reorganize was arrived at during a special meeting and banquet of the association on Thursday night of last week at the Hotel Lenox. After the dinner, President Kenneth E. Skinner called the meeting to order, Chester I. Campbell acting as secretary. The question of reorganization was brought up and thoroughly discussed. It was finally left to a committee comprising J. H. McAlman, J. W. McGuire, J. H. Hathaway, A. B. Underhill and A. E. Morrison, with full power. Twenty-seven cars were pledged to take the boys from the Perkins Institution for the Blind on an outing in June. A resolution also was passed urging the Massachusetts senators to support the free alcohol bill now before Congress.

Axle Company Reorganizes Itself.

The Columbus Auto Axle Co., which has been doing business in Columbus, Ohio, was re-incorporated last week, as the Direct Drive Axle Co., with a capital stock of \$150,000, the incorporators being C. T. Phillips, W. E. Campbell, C. O. Haines, Irvin M. Pleukarp and J. R. Fassig. The company has about completed arrangements for building a factory in the northwestern part of the city to manufacture the direct drive axle, invented by Pleukarp. The building will be 60x150 feet, of brick construction.

Another Thomas to Make Automobiles.

According to advices from Lyons, N. Y., Orlando F. Thomas, president of the Bank of Wayne and of the Lyons Business Men's Association, has purchased the Kingston Steel Works, a plant covering eight acres of land, and will fit it up for the manufacture of automobiles. Operations will not, however, begin until the latter part of the year.

Los Angeles Concern Suspends.

An attachment on a \$1,100 bill caused the Auto-Dispatch Co., a \$90,000 concern of Los Angeles, Cal., to suspend operations. Just what the liabilities of the company are, or whether business will be resumed, is not stated. Fourteen trucks and two sight-seeing cars constituted the rolling stock of the company which, apparently, was doing a thriving business.

Berliet Branch in Chicago.

The American Locomotive Co., manufacturers in this country of the Berliet car, opened its Chicago branch last week at 1532 Michigan avenue. Waldon W. Shaw has been given the Chicago agency, the only one which will not be strictly maintained by the factory, it is stated.

ELECTRICS FOR FIRE CHIEFS

**New York Makes a Surprising Departure—
Baker Gets the Big Order.**

One of the biggest boosts ever given the electric vehicle was given it this week with the arrival of the first consignment of the Baker cars received by C. B. Rice, the New York agent, which are designed for

to drive it a distance of eighty-four miles on a single charge.

When seen by a Motor World man, Mr. Rice told of the Fire Department deal, but proved to be reticent when questioned as to the number of vehicles included in the lot. That a part of them were included in the first cars received, he admitted, and that others were to follow, but just how many, he refused to say. "In fact, I wouldn't dare



BAKER ELECTRIC FOR NEW YORK FIRE DEPARTMENT.

the use of the deputy chiefs of the New York Fire Department. These vehicles, one of which is here illustrated, are particularly well fitted for this class of light, rapid service, besides possessing especial fitness for the work on account of their simplicity of operation and control, which, in connection with their instant ever-readiness, were the features that appealed to the Fire Department.

Structurally, the cars are built upon rather novel lines, having the motor mounted at the forward end, and carrying a shaft transmission of the approved cardan type. The general appearance is that of the wholly modern runabout, with a low closed bonnet in front of the dash, and a long sloping turtle deck behind the seat, which is protected by a folding leather top. The battery is carried under the seat, and comprises twenty-four cells, giving a rated running capacity of forty miles on a charge. The motor, which is iron-clad and entirely enclosed, is rated at $2\frac{1}{4}$ horsepower. The wheel base is 82 inches, the tread $55\frac{3}{8}$ inches, and the weight totals 1,800 pounds. The control is from the right side of the vehicle, lever steering being employed.

In actual work, this little machine has already vindicated itself to the entire satisfaction of its makers, having run at a maximum speed of thirty miles an hour, generally eclipsing other machines of its type as far as speed capabilities are concerned, while under stress, the battery has been found equal to supplying sufficient energy

tell you," he said, "for you wouldn't believe me. But as a matter of fact, I have no reason to complain."

It is generally understood, however, that the Fire Department's order is for some twenty odd machines.

RAMBLER WAGON APPEARS

**Jeffery's First Commercial Vehicle Reaches
New York—How it is Built.**

Homan & Schultz, local agents for T. B. Jeffery & Company, of Kenosha, Wis., last week received a Rambler delivery wagon, and at once set about an exploitation which promises early returns of an encouraging and remunerative nature. The car, as here shown, is of a particularly attractive type for this class of work, and it the first of the sort to reach New York.

Structurally, the machine is not sufficient of a departure from the well known surrey to be anything in the nature of an experiment, for, indeed, it is constructed on practically the same lines, as far as the chassis alone is concerned, except that the double chain drive with the solid rear axle is employed. The motor is horizontal opposed, of 5 by 6 inches dimensions, and rated at 18 horsepower, and the planetary type of transmission yielding two speeds and the reverse is carried, the chain reduction on the final drive being such that a low speed may be obtained ordinarily with the acquisition of greater power, by the same token.

The body is of simple and heavy construction, giving plenty of room in the clear behind the driver's seat, a screen serving to retain the load at the front, while full double doors at the back give



RAMBLER DELIVERY WAGON

ample access to the interior. The exterior is finished in full panels, with curved edges, a single ornamental window in front at either side giving the proper driving facilities and also serving to relieve the otherwise plain appearance of the machine.

FISK



TIRES

SIMPLE

SAFE

These tires are built particularly for those who wish to avoid all kinds of exasperating tire troubles,

WHO BELIEVE IN LIFE INSURANCE,
and who are desirous of economy in tire maintenance.

"AN EVER SATISFACTORY ARTICLE WITH NO DISAPPOINTMENTS."

THE FISK RUBBER-CO. CHICOPEE-FALLS, MASS.

CADILLAC SUPREMACY

The "staying" and "get there" qualities of the single cylinder Cadillac again asserted their supremacy over the two cylinder misconception as evidenced by the following telegram from Mr. Jacob Roth, the Cadillac Dealer in Erie, Pa.:

"Single cylinder Cadillac ten horse power wins thirty mile race in mud against two cylinder _____ of sixteen horse power in one hour and twenty-five minutes by margin of nine minutes and twenty seconds."

The telegram was followed by the accompanying letter which speaks for itself:

CADILLAC MOTOR CAR CO., Detroit, Mich.

Erie, Pa., May 11, 1906.

Dear Sirs: Your congratulations on winning the race received. Beg to state that if there were any 2 cylinder adherents before the race, they have since disappeared.

The fine work of the single cylinder Cadillac has been doing on our roads, which are not of the very best, being both very hilly and rough, has sold for us up to the present time six carloads. The result of the race with the 2 cylinder _____ has closed three deals for Cadillac cars with people who had been listening to the sweet two cylinder story. Our claim that the Cadillac would be subjected to severe services on the heavy roads, especially through six inches of mud and over hills as during the race, without over-heating or racking any part of the car, was proven. We allowed the car to be examined by the enthusiastic crowd to verify the fact, while the _____ came in laboring very hard and steaming like a steam engine.

We wish to congratulate the Cadillac Company in giving the public the best value in a family car at the right price.

Yours very truly, (signed) JACOB ROTH.

Our catalogue tells why the single cylinder Cadillac has such "winning ways."

MODEL "K" LIGHT RUNABOUT, \$750.00

MODEL "M" LIGHT TOURING CAR, \$950.00

CADILLAC MOTOR CAR COMPANY, - - - Detroit, Mich.

Member Association Licensed Automobile Manufacturers.

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NEW YORK, MAY, 17 1906

The Doom of the Scorcher.

Very gradually there is dawning on the police authorities of this country the proper solution of the scorching evil. The solution is a simple and comparatively inexpensive one, and long has been clearly apparent to all of those who have given the subject really serious thought. It does not carry with it any great mass of legislation or the exaction of extortionate fees, nor require any burdensome or one-sided enforcement of class laws, for the solving of the whole problem is contained in the motor bicycle, which during the past few months the police authorities in not a few communities have called into service.

The value of the motor bicycle in this regard has been apparent at all times, and why it should have been so long overlooked is one of the things difficult of understanding. To rid a barn of rats, men do not sit all day with pitchforks or shotguns waiting for the rodents to make their appearance; they have recourse to the natural born rat-catchers—cats, dogs or ferrets.

The animals are employed because of their special aptitude for the purpose, and because they are as quick or quicker than the pests which it is desired to exterminate.

Comparatively speaking, the motor bicycle has all the attributes of the rat-catching animal. It is as fast or faster than the average motor car; it is likewise inconspicuous and inexpensive; and, what is very much to the point, it can not only follow almost any pace set by the scorcher, but can maintain it, practically to the end of time. It is thus able to pursue its quarry into its very hole.

Wherever laws have been passed, the cry has been that the trouble is not with the law itself, but with its enforcement. But the more or less elaborate traps laid by the police for the purpose have served to catch only those automobilists who are willing to be caught. The most flagrant offenders—those who cause all the trouble and outcry, are able to snap their fingers at such contrivances and escape at will. But few of them could escape a pursuing motor bicycle. At best these traps are premiums on hairsplitting, oppression and even perjury, and for that reason the law abiding automobilist himself will rather welcome the motorcycle patrolman. The latter also should welcome the change of mount from the pedal propelled bicycle to its motor driven prototype. When he swears to speeds of 30 and 40 miles an hour it will seem less like perjury and more like truth. Scorching on bicycles was not suppressed until policemen were mounted on bicycles and now that policemen are being mounted on motor bicycles the end of scorching in motor cars is in plain sight. It will prove an effective check, as it will also show the needlessness of all the ponderous and intricate legislation that fills the pages of the statutes.

The motorcycle policeman sounds the doom of the scorcher and will prove what the Motor World has contended from the beginning—that there was and is small need for other than the common law. Its enforcement was all that the necessities of the case required, and the police have at last awakened to the means of its enforcement.

Magnitude of the Accessory Trade.

While it is the fashion, and not unnaturally, to marvel at the development and magnitude of the automobile industry, and to remark with more or less awe the impressive values in dollars and cents represented

by the finished cars, it is as usual to overlook the equally remarkable development and magnitude of the parts and accessory trade. Yet even a cursory glance over the field shows that the growth of the manufacture of motor cars has been responsible for astonishing influence on and development of many of the older industries, to say nothing of the new businesses which it has brought in its train.

It has effected marked perfection in steels and has infused with new life and new earnings the production of tires, wheels, bodies, chains and the like; also, it has wrought a revolution in the production of such things as lamps, horns, speedometers, odometers, goggles, spark-plugs and kindred wares, all of which previously had been on the market, but the demand for which, and the improvement of which, had lacked vitality. Even in the matter of clothes, the automobile has exercised no small influence, and the new garb for which it has been responsible, represents in the aggregate a tidy sum.

It is impossible to even guess at the total value of the accessories produced, but there is no doubt that if it were possible to do so the value, comparatively speaking, would be as staggering in extent as that of the cars themselves. For few of the accessories are cheap wares. Each usually represents a round sum. It is a great big business, that of automobile accessories.

Suppressing Evils with Resolutions.

The Rochester Automobile Club held its annual meeting on Thursday last. Among those present was a State Senator. Among the subjects discussed, the evil of scorching and the best means of suppressing it were uppermost. A rather fanciful idea of constituting the automobile clubs "a clearing house of complaints" was considerably lauded. The State Senator himself participated in the talkfest. He told his hearers that if there was not evolved a "clearing house" or some other check on "the crazy man in the automobile," as he termed the scorcher, the legislature would be compelled to "do things."

About a week previous the Rochester Automobile Club had also held a meeting. On that occasion also the club had discussed scorching—a particular case of scorching. One of its own members had made the run from Buffalo to Rochester at the rate of some fifty odd miles per hour. He had smashed the "record" into smithereens. He has designed to do that very

thing. He carried two timekeepers with him—one was a newspaper reporter, the other—please note—was a former State Assemblyman. They had been strapped in the car in order that they might not be tossed out as the car fairly burned the road, alike in the open country and in village and town. The laws of the land and of safety and decency were fairly mocked. But the Rochesterian "broke the record," all right. The newspaper reporter and the former assemblyman, both accessories before and after the fact, executed formal affidavits to the correctness of their timing. Despite the existence of this proof, there is no evidence that the police authorities took action. But such premeditated and authenticated law-breaking did not escape the club. What did it do? Please do not laugh! It duly and solemnly reprimanded the offending member. His suffering readily may be imagined!

The Rochester record-breaker is not the first man to indulge in flagrant and deliberate law-breaking; probably he will not be the last one to do so. The Rochester club is not the first organization, nor will it be the last one, to denounce and discountenance such offense. But the particular incident and the proceedings of the club's two meetings simply serve to accentuate the situation that exists and long has existed.

Resolutions, reprimands and suspensions that amount to nothing are mere figures of speech—mere jumbles of words. They serve no real purpose. They never will suppress scorching or a scorcher and serve rather to show their own hollowness. If automobilists and automobile clubs are truly sincere in their railing at evils, they must make their deeds square with their words. The squaring will entail drastic and disagreeable action on their part and it probably will not add to the popularity of the man or organization that takes it, but if merely to "place the organization on record" is the purpose of such resolutions, it is better that they be left unresolved. They do nothing to curb "the crazy man in the automobile." They merely flatter the fancies of the resolvers.

Why the Electric Fire Wagon.

It is by no means a new idea, that of the electrically-driven fire apparatus, yet up to this time its only realization has been in the form of chemical engines and tenders of moderately light construction, as lightness goes in fire-fighting apparatus, yet moder-

ately heavy, according to the ordinary acceptance. These machines, of which a number have been made and used, have done their meed of work, at the same time, however, attracting little or no attention from the world at large. Now, however, the announcement that New York's Fire Department is about to be equipped with a number of electric runabouts for the use of its officers and the fact that the wonderfully popular gasoline machine, with its great adaptability to all sorts of uses, and the steam car, with its marvelous speed record, have been passed over in the choice, induces a measure of reflection which brings out a number of advantages peculiar to this method of propulsion and not possessed by any other.

Considering these briefly, in relation to their adaptability to this sort of service then, it is a remarkable fact, first of all, that the electric machine is always ready to start on the instant. There is no interval lost while a steam supply pipe is disconnected and the fire started, there is no necessity of cranking, nor the peradventure that a slight maladjustment of parts may render it fruitless and involve a delay of precious time. There is no machinery to be tended by skilled engineers, one or more, when on the road, nor at the fire—the driver is in full command, and the speed of the modern vehicles, 25 to 30 miles an hour, is all that any city fire chief requires or will be able to attain. The driving effort is ideal in its evenness and ease of gradation and the technique of its handling is neither difficult to master nor likely to become confused under stress of emergency duty. Moreover, the motor and transmission are so constituted that they are capable of running for many hundreds of miles without overhauling or attention, other than that of lubrication; and the batteries by duplication, may be renewed as fast as becomes necessary, the machines in this way being kept going almost indefinitely.

As to the disadvantages of the electric vehicle as they apply to every day service, it will be seen that their significance is here diminished by a considerable amount, owing, first of all, to the fact that the fire department work is that of an emergency, which admits of the employment of any method which is sufficiently responsive to meet the demands made upon it, regardless of cost, and, second, that it is of an intermittent nature, which, in the case of the mechanically propelled vehicle of any type, implies that the maintenance cost depends almost wholly on the mileage.

EFFICIENCY PRIZES AWARDED

Ceremonies Attending the Distribution—Official Score Shows but Slight Change.

Awards were made Monday night at the rooms of the Automobile Club of America, New York City, of the prizes won in the two-gallon efficiency test last week. Previous to the presentation of the cups and medals, President Dave Hennen Morris and Dr. Schuyler Skaats Wheeler, Chairman of the Contest Committee, gave a resume of the results of the contest and told what lessons the committee had learned whereby future events of this character might be improved upon. In this respect one of the most frank admissions was that handicaps allowed the one and two cylinder cars had been too severe.

E. S. Partridge, of the Decauville Automobile Co., which entered the winning Franklin car, and which concern also handles a foreign machine, accepted the gold punch bowl from Dr. Wheeler. He concluded his thanks by saying: "We all are glad that an American car won the trophy." The second prize, a silver cup valued at \$100, was presented to Dr. Butler, who drove the 24 horsepower Frayer-Miller car that finished second in points. S. B. Stevens, who was third in a Darracq, was not present to receive the silver medal for third place.

Certificates of performance will be issued to such of the sixty cars that finished as desire them.

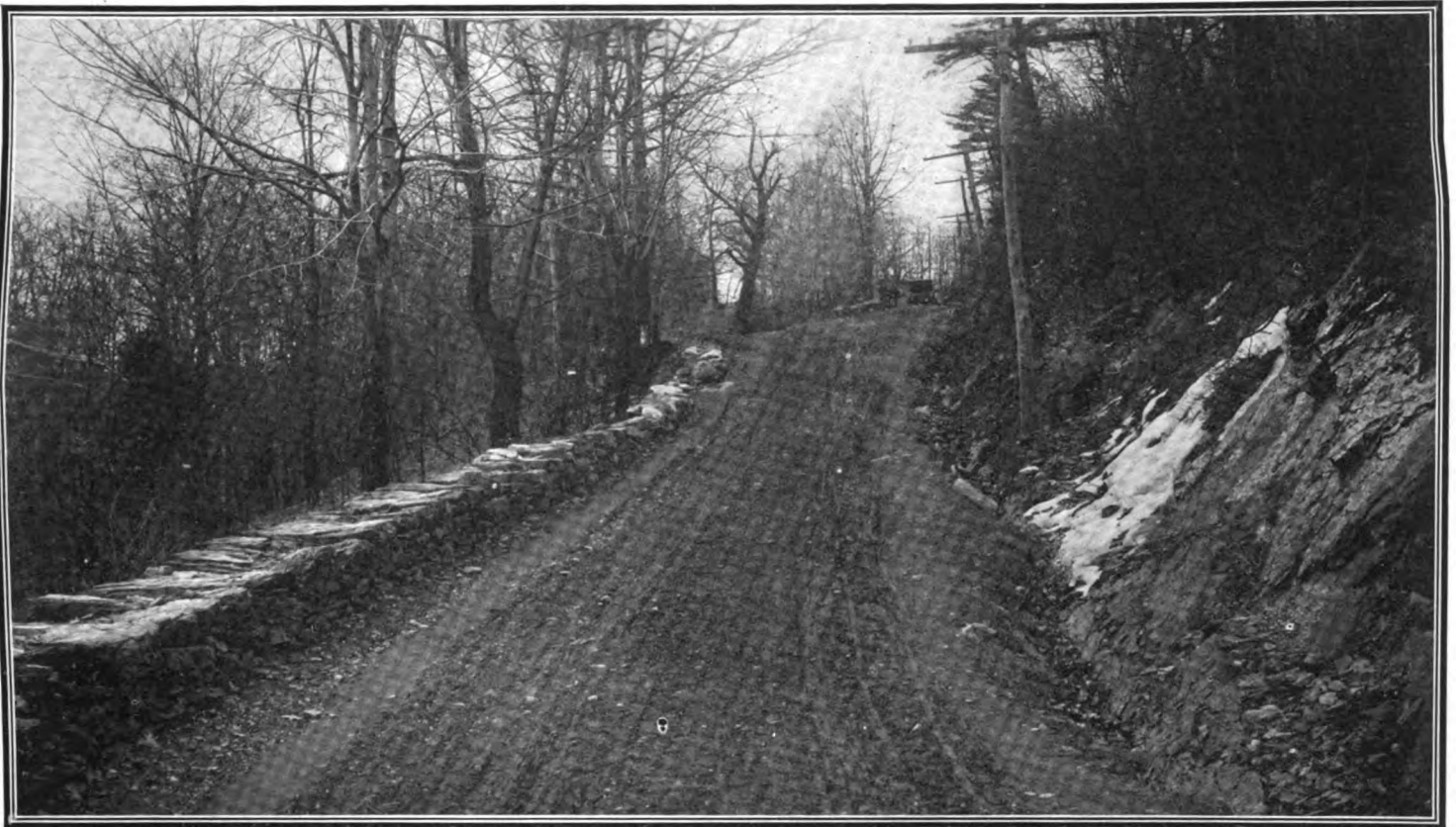
The official promulgation of the results of the contest differ little from the first rough summary, the chief change being an increase in the score of the Darracq, which finished third. The final standing of the first fifteen cars follows:

Car	H	P.	Pas- sen- gers	Con- test weight	Miles	Score
Darracq.....	32	4	4,400	34.62	152,328	
Franklin.....	12	2	2,300	87.	200,000	
Frayer-Miller..	20	5	4,070	47.9	194,953	
Darracq.....	20	5	3,910	46.44	181,580	
Berliet.....	24	5	4,460	39.1	174,386	
Mack.....	50	19	10,125	17.13	173,441	
Franklin.....	12	4	2,940	58.4	171,696	
Queen.....	28	4	3,960	41.4	163,944	
Stod'rd-Dayton	30	5	4,000	40.83	163,320	
Lozier.....	40	6	5,290	30.28	160,181	
Renault.....	14	5	4,200	36.61	153,762	
Compound.....	16	5	3,410	43.5	149,422	
Frayer-Miller..	24	5	4,200	35.5	149,100	
Renault.....	10	4	4,040	36.83	148,793	
Packard.....	24	6	4,910	30.25	148,527	

Pennsylvania Law Unconstitutional.

On Monday, Judge Newcomb sitting in the court at Scranton, declared the Pennsylvania automobile law to be unconstitutional; the text of his decision is not yet available.

Great Going Up Wilkes-Barre Mountain.



Up a stony road, whose perilous convolutions and water-breaks vividly put one in mind of the storied hazards of Alpine climbing or the difficult travel across Siberian steppes; over a rough, treacherous surface more than a mile in length with an average grade of fifteen per cent and in some places as steep as twenty-seven per cent., in an automobile at the speed of 27 miles an hour is a feat of no mean accomplishment, and one in which the victor is entitled to every whit of glory and praise he received.

This was done on Thursday last, 10th inst., by H. N. Harding, who drove an English Daimler car over the twists and turns of the mountain course that was the scene of the first Wilkes-Barre hill-climbing contest which opened the public jubilee arranged in honor of the Pennsylvania city's one-hundredth anniversary. Harding drove his car—one of 45 horsepower—in two events, for stock cars selling at \$9,000 and under, and the free-for-all, winning them both, and in the former establishing the fastest time of the meeting—two minutes eleven and one-fifth seconds. But Harding was not all alone in his glory nor does his feat belittle the excellent performances and sterling tests of nerve displayed by the other cars and drivers who successfully negotiated this stamina testing mountain road.



H. N. HARDING, THE VICTOR.

Should one search the entire country over it is doubtful if a more ideal course for a hill-climbing contest can be found than Wilkes-Barre Mountain, in Central Pennsylvania. It has been christened by some Giant's Despair, and the name never will be mal-appropos. For natural beauty the scene afforded at the summit of the mountain is unsurpassed. The road is seen winding its tortuous way down the side, skirting around massive bluffs of solid rock, disappearing here and there in clumps of forest growth and finally swallowed up in the maze of low-built houses that form the city of Wilkes-Barre below.

The scene spread out before the watcher's gaze from the mountain top on Thursday last was one no artist could do full justice to. On the east and west are two long ridges of mountains. In between lay the beautiful Wyoming Valley. On top of both the eastern and western ridges the sun was shining beautifully, while a dense fog hovered over the valley, completely obliterating from sight the city. Suddenly the fog was dispelled and the valley in all its beauty and grandeur could be seen as plainly as it was invisible but a moment before. Then the scene on the mountain top was changed. Misty rain followed the sunshine, to be in turn succeeded by hail and snow. All the while the elements were raging on the mountain, countless numbers



KOEHLER (BUICK) ROUNDING AN S CURVE.



THE POPE TOLEDO COMING UP.



MAY D Y WARMTH.

of celebrators were basking in the sunshine in Wilkes-Barre.

That the course was a difficult one is substantiated by the fact that not all the cars that started were able to reach the top. As time wore on, the road, dangerous at its best, was made more so by the rain, hail and snow making the surface more slippery and more treacherous than at first.

The climb started at 9:40 a. m., and it was two hours after noon before it was officially declared over. The first event was for stock cars costing under \$1,000. There were but three entries, two starters, and one finisher. The lone survivor was a 22 horsepower Buick, driven by H. J. Koehler. A 10 horsepower Maxwell, by Kelsey, was announced as having started, but was said to have run out of gasoline before reaching the top. The other car, a Stanley steamer, was the cause of the only row of the meet. It had been brought on from Baltimore, Md., and entered in several of the stock car events as well as the free-for-all. On the ground that it was not a stock car it was ruled out of all the events except the free-for-all. This led to a wordy alterca-

tion between Gill, its owner, and Secretary Sidney Gorham, of the American Automobile Association, who refereed the meeting, in the lobby of the Hotel Sterling on Wednesday night. The men were on the point of forgetting their positions by settling the difficulty with an ungloved fist fight then and there, when spectators interfered and separated the wranglers. The cause of all the trouble did start in the free-for-all event but never reached the top.

The hill climbing capacity of the Buick was proven in the next event, for cars costing under \$1,500, when Koehler covered the distance in 3:00 $\frac{1}{4}$. E. F. Scheuffer, at the wheel of a 20 horsepower Jackson, finished second in 4:40 $\frac{1}{2}$. Kelsey, in the Maxwell, was announced, but it took him more than five minutes to reach the top. Then the officials at the telephone—the timing was done by means of this instrument, as an electrical timing apparatus had gone astray in transit—announced that the 16 horsepower Reo, driven by R. M. Owen, had started. Something evidently happened for it took the car so long to reach the summit that the timers announced: "No time taken." This caused a small boy to shout to a companion across the road: "Hey, Jimmy; it didn't take that car no time to come up."

About this time the hail began to fall with a vengeance, which made the course anything but desirable. Just when the hail fell so thick that it was well nigh impossible to distinguish objects twenty feet distant, some exuberant soul started the refrain: "Hail, hail, the gang's all here," and the spectators down the mountain side took it up. Snow followed the hail, the thermometer fell many degrees and the faithful group on the top shivered, shook and swore until one of the rural constables conceived the happy idea of building a bonfire. Fence rails and dead branches was requisitioned and, warmed externally by the blaze and internally by the contents of some lunch baskets, the watchers were once more in a cheerful frame of mind.

It is difficult to estimate the number of spectators who saw the cars romp up the incline, for they were scattered over an



KELSEY (MAXWELL) ON THE STEEPEST PITCH.



SCENE AT THE STARTING POINT.



THE STEVENS DURYEA BREASTING THE BROW.

area of several miles. Several thousand crowded around the starting point, there were perhaps a thousand at the "Devil's Elbow," and as many more at the top, while many groups secured various vantage points along the roadside. The mountain police had some difficulty in keeping the course clear and that no one was hurt is remarkable. The committee on arrangements had expected to have the Pennsylvania State mounted constabulary patrol the course, but on account of the ill-feeling existing between the State troops and the miners, it was thought advisable to do without them. Instead, the miners were given a few special officers' badges with instructions to keep the spectators off the road and they did as well as their limited amount of experience would allow.

"Devil's Elbow," appropriately named, proved a Jonah for the Matheson runabout. Lescault, the driver, took the turn at full speed and, as a result the car landed in a ditch, burying its nose in the bank and smashing a bicycle that had been left standing there. Neither the driver nor his helper received a scratch, and the only damage the car suffered was a broken strut rod. "Devil's Elbow" is nearly half way up and is that part of the road that nearly doubles on itself. It might be characterized as an "S" curve, but for that matter, the course abounds with multiple "snake curves." The steepest part of the course and where many of the cars balked, was three-quarters of the way up. Here is a sharp upward rise for a hundred feet, grading 27 per cent. and several engines gasped and died before getting over the crown.

One of the notable performances of the day was that of the big six-cylinder Stevens-Duryea. In the event for cars costing under \$5,000, Driver Hancock got a false start and although the car was going great guns at the finish, no time was taken. Later, when the road was in much worse condition, the big car went up in 2 minutes 27 seconds, the time counting for the event in which it had a false start and also in the free-for-all. This gave Hancock first place in the stock car class and second in the



THE ORIENT STOPS—SHORT OF GASOLENE.



THE MATHESON DITCHED AFTER ROUNDING THE DEVIL'S ELBOW.

free-for-all, the second best performance in the meet.

In the event for cars costing under \$5,000 two Pope-Toledo cars showed up well. The "45," driven by Valentine Bliss, took second place in 3:12, and S. A. Elliott's 35 horsepower machine was third in 3:51½. Frank Lescault (24 horsepower Matheson) with Ralph Mongini, who it is said will pilot the big Matheson racer in this year's Vanderbilt cup race, sitting up in the front seat nonchalantly puffing away at a big black cigar, finished for fourth place. His time was 4:05½. The next car to cross the tape was E. C. Johnson's White runabout.

A 35 horsepower Rambler runabout, with Herbert Bittner at the helm, scored a decisive victory in the class for cars costing between \$2,600 and \$3,000. Bittner was timed at 3:18½, nearly seven seconds faster than the time scored by the next car, Elliott's Pope-Toledo. C. W. Kelsey was third in 3:27½, and the driver of the Pope car wanted to protest the Maxwell until he learned that its time did not equal that made by the Pope machine. Kelsey drove a stripped car in this event, which was supposed to be for cars in full touring equipment, minus mufflers. The Matheson, driven by Lescault, scored another fourth.



APPROACHING THE DEVIL'S ELBOW.

The performance of the White was rather disappointing to both the Philadelphia agent and the spectators, for the same car had made much better time in previous private trials.

The best time of the day was made in the event for cars costing up to \$9,000—a special race created to allow the English Daimler, which sells at that figure, to compete. Harding's daring driving elicited cheers from each group of spectators as he sped past them, and when the time—2 minutes 11½ seconds—was announced the driver, who, by the way, is a good sportsman, albeit he is decidedly English, was warmly congratulated. Harding started on second speed, but after negotiating "Devil's Elbow" finished the climb on high speed. What makes his performance all the more noteworthy was that he had driven the car all the way from Springfield, Mass., carrying three passengers besides himself and four hundred pounds of baggage. Second place in this event was "copped" by Elliott's Pope-Toledo, which finished in 3:16¾. C. R. Greutter's 40 horsepower Matheson runabout finished third in the good time of 3:31½.

A Pope-Toledo car added another medal to its string in the event for cars costing less than \$2,500. This was about the best filled event on the program and all but two cars finished. Werland drove the 24 horsepower Pope-Toledo and finished fast. His time was 2:56½, even better than that of the larger cars in the other events. Bittner's Rambler and Koehler's Buick tied for second place in this event, each taking 3:21½ to reach the white tape at the top. Later it was announced that these two cars would run off the tie, but the Buick stalled on the way. R. E. Pardee, driving a 30 horsepower Stoddard-Dayton, came in fourth in 4:31½. Johnson, in the White runabout was next.

It was after one o'clock before the intended tid-bit of the meet was served and by that time many of the spectators had forsaken "Giant's Despair" and its chill atmosphere. The event was the free-for-all but due to a lack of competitors it was less interesting than the stock events. From a mile below the timer's stand came the telephoned message that the Stanley steamer had been sent on its way. Five minutes passed and then it was learned that

the Stanley had turned back. There was more waiting until the Stanley started again. It got ten feet around "Devil's Elbow," and there stopped. What happened it could not be learned. The boiler was steaming merrily with no one in sight to answer questions when the Motor World man reached his Satanic Majesty's "funny bone." After the steamer was declared out, the daring Harding started with his Daimler. The car was in full touring equipment with the exception of the cushion in the tonneau, which was thrown overboard just after the start. Although the time made by the Englishman in this event was not as fast as that in the stock car class it was low enough for him to win. Conditions were poorer for good time in the free-for-all event, as the road was even slippery to walk up. This was the only foreign car that was seen in the events. Another entrant for the free-for-all was the 80 horsepower Darracq that won the Vanderbilt cup race last year, but it did not start. The car had been driven all night over the rough roads and the transmission went out of kilter just before the start. Hancock's one trial for two events netted him second place in the free-for-all and C. W. Kelsey, in a stripped Maxwell, finished third. The time of the latter was 3:04¾. The summary of the various events follows:

FREE-FOR-ALL.

Pes.	Driver.	Car.	Time.
1.	F. N. Harding,	45 h. p. English Daimler.	2:16½
2.	S. H. Hancock,	50 h. p. Stevens.	2:27
3.	C. W. Kelsey,	36 h. p. Maxwell.	3:04¾
4.	H. W. Gill,	8 h. p. Stanley.	(did not finish)

CARS COSTING \$1,000 AND UNDER.

1.	H. J. Koehler,	22 h. p. Buick.	3:10¾
2.	C. W. Kelsey,	10 h. p. Maxwell.	(did not finish)

CARS COSTING \$1,500 AND UNDER.

1.	H. J. Koehler,	22 h. p. Buick.	3:00¾
2.	E. F. Scheuffler,	20 h. p. Jackson.	4:49½
3.	C. W. Kelsey,	20 h. p. Maxwell.	5:25
4.	R. M. Owen,	16 h. p. Reo.	(no time taken)

CARS COSTING \$2,500 AND UNDER.

1.	Edward Werland,	24 h. p. Pope-Toledo.	2:56½
2.	Herbert Bittner,	35 h. p. Rambler.	3:21½
2.	H. J. Koehler,	22 h. p. Buick.	3:21½
3.	R. E. Pardee,	30 h. p. Stoddard-Dayton.	4:31½
4.	E. C. Johnson,	18 h. p. White.	5:06½
5.	Charles Fleming,	20 h. p. Maxwell.	5:14
6.	E. P. Chalfant,	20 h. p. Orient.	(did not finish)

CARS COSTING \$2,600 TO \$3,600.

1.	Herbert Bittner,	35 h. p. Rambler.	3:18½
2.	S. A. Elliott,	35 h. p. Pope-Toledo.	3:25½
3.	C. W. Kelsey,	36 h. p. Maxwell.	3:27½
4.	Frank Lescault,	24 h. p. Matheson.	4:24½

CARS COSTING \$5,000 AND UNDER.

1.	S. H. Hancock,	50 h. p. Stevens-Duryea.	2:27
2.	Val Bliss,	45 h. p. Pope-Toledo.	3:12
3.	S. A. Elliott,	35 h. p. Pope-Toledo.	3:51½
4.	Frank Lescault,	24 h. p. Matheson.	4:05½
5.	E. C. Johnson,	18 h. p. White.	5:51½

CARS COSTING \$9,000 AND UNDER.

1.	H. N. Harding,	45 h. p. English Daimler.	2:11½
2.	S. A. Elliott,	35 h. p. Pope-Toledo.	3:16½
3.	C. R. Greutter,	40 h. p. Matheson.	3:31½

New York, or what may be styled the "better half" of New York, i. e., Brooklyn, is to have an automobile parade, after all. The Long Island Automobile Club will hold one on Saturday next.

ROAD RACE FOR ROCHESTER

Event Finally is Decided on at a Busy Meeting—Officers Chosen.

The sixth annual meeting of the Rochester Automobile Club, held at the Eureka Club, Thursday evening, May 10, was the largest and most enthusiastic in the history of the club. Senator W. W. Armstrong, F. H. Elliott, secretary of the New York State Automobile Association, President Brown of the Syracuse club, and President H. A. Meldrum of the Buffalo club, were guests of the occasion.

Perhaps the greatest enthusiasm of the evening centered about the proposition to hold a 100-mile road race over a 25-mile course in the vicinity of Rochester on Labor Day. The idea, as presented by President Woodworth, was to make it a gentlemen's race in which stock touring cars should be used, driven by the owners or some person whom they should designate. No race of this character has ever been held in this country. F. H. Elliott, secretary of the State Association, spoke at some length of the practicability of holding such a race and said that he was authorized to give the name of a Syracuse man, not in any way connected with the manufacture or ownership of automobiles, who would be the donor of a \$1,000 cup to go to the winner of the race. Upon being put to a vote only four members voted in the negative; the officers were therefore authorized to go ahead with plans for the race in conjunction with the State Automobile Association.

The plan proposed by Prof. Chas. T. Terry, of Columbia University Law School, relative to making automobile clubs a "clearing house for complaints" against automobile drivers, which has been submitted to all the clubs in the State Association, was taken up with a great deal of interest. Senator Armstrong, in a concise and pithy speech, strongly commended Prof. Terry's plan and said that unless the automobile clubs did something practical toward cutting short the career of the crazy man in an automobile, that the pressure upon the legislators at Albany would be so great that automobile owners and interests would be confronted with the passage of laws of the most drastic character. The plan, as outlined by Prof. Terry, was unanimously adopted and the Board of Governors was named as the club's Committee on Grievances.

The election of officers for the ensuing year resulted as follows: President, Harry S. Woodworth; vice-president, Henry G. Strong; secretary-treasurer, H. Seymour Bentley; attorney, John A. Barhite; consulting engineer, A. J. Rockwood; directors—Griff D. Palmer, F. H. Bettys, Lee Richmond, F. E. Mason, A. F. Crittenden, J. S. Bingeman, George G. Foster, Wm. C. Barry, Jr., Rudolph Schmidt. Luncheon was served after the meeting.

The report of the secretary showed a present membership of 203, a net increase for the year of 47.

No Crime to Give Warnings.

It is not a crime to prevent the commission of a crime. So decides an English magistrate, and it cost him several weeks of earnest thought and research to arrive at this sensible conclusion.

As has been related in the Motor World, a motorist who resided on a country road just outside London, where the "bobbies" had planted an elaborate speed trap to detect violators of the law, stationed himself on the highway one Sunday morning and essayed the good Samaritan role by warning all passing automobilists of the existence of the speed trap. So efficient was his work that not one driver fell prey in the trap and the "bobbies" were forced to suspend business without making a single arrest. Then the disgruntled minions of the law went for the public spirited individual who had upset their plans for the day, arrested him, and haled him before the very magistrate whom they had expected to further their schemes in an entirely different manner.

The grave charge was "interfering with His Majesty's police in the course of their duty." The defendant was defended by the Motor Union and the case went against the over zealous police officers, the magistrates deciding that it is not a crime to prevent the commission of a crime.

Massachusetts Commissioners Upset.

Whenever a law is placed on the statute books it looks imposing enough in cold type until some lawyer tries to beat it, and then when a legal defect is discovered which will free a client there is much rejoicing.

It follows that Massachusetts automobilists are wearing smiles as the result of the Walter Clapp, Jr., case in the Municipal court of Boston, last week. Clapp, who is attached to the Rambler branch, was summoned on a charge of violating the rules and regulations of the Massachusetts State Highway commission in not displaying two numbers on his car.

The only evidence which the secretary of the Massachusetts highway commissioners could introduce from the records of the commission was that on August 20, 1903, it was voted that a "form of certificate" be approved, and the government tried to show that this vote included the rules and regulations printed thereon, but the court sustained the contention of the defendant's attorneys, that to approve a form of certificate is not passing rules and regulations. Incidentally it developed at the trial that, as matters now stand, the Massachusetts highway commissioners' regulations, as printed upon the various certificates of registration, are null and void.

Viewing it in this light, Judge Sullivan dismissed the charge.

WILL GIVE GOLD CUP, TOO

That Trophy to be Chief Award in New York's Economy Test—Details Arranged.

Rules and conditions have just been issued for the New York Motor Club's second annual economy test, which is scheduled for June 20, 21 and 22. Although it comprises three runs, the route this year is slightly different from the course taken last year. The first stage of the journey will be to Albany, 150 miles; on Thursday, June 22, from Albany to Springfield, Mass., 131 miles; on Friday from Springfield to New York City, about 149 miles. The total distance is about 430 miles.

The basis of comparative charges as against railway transportation for the entire test is to be as follows:

New York to Albany—1 passenger, \$3.10; 2, \$6.20; 3, \$9.30; 4, \$12.40; 5, \$15.50; 6, \$18.60; 7, \$21.70.

Albany to Springfield—1 passenger, \$2.95; 2, \$5.90; 3, \$8.85; 4, \$11.80; 5, \$14.75; 6, \$17.70; 7, \$20.65.

Springfield to New York—1 passenger, \$2.98; 2, \$5.96; 3, \$8.94; 4, \$11.92; 5, \$14.90; 6, \$17.88; 7, \$20.86.

Totals—1 passenger, \$9.03; 2, \$18.06; 3, \$27.09; 4, \$36.12; 5, \$45.15; 6, \$54.18; 7, \$63.21.

According to the conditions published on the entry blank the awards will be made on the basis of per ton mile. This eliminates all handicapping and division into classes; it will be remembered that last year so many classes were provided for that nearly every car that survived received a prize. The basis of the cost per mile is as follows:

The total weight of the car, passengers, baggage, extra parts and equipment, in tons and fractions, is multiplied by the miles travelled giving what is known as "ton mile." The total cost or charges against each car when divided by the ton miles travelled, gives the average cost per ton mile. Total cost will then mean the sum of all charges against each car as laid down in the rules, including gasoline, oil, repairs, adjustments, new parts, tires, fines, tolls, storage, etc.

Charges will be as follows: Storage at Albany and Springfield, one dollar per night; gasoline, twenty cents per gallon; lubricating oil, ten cents per pint or fraction thereof; time of all repairs, adjustments, or replenishments, one cent per minute for the driver and two cents per minute for each and every other person employed. This rule will include all work done in connection with the tires.

The entire fee for all cars is \$100, payable at the time of making the entry. The prizes are first, a gold cup; second, a silver cup; third, a bronze medal; each to become the absolute property of the winner. A certificate of award will be given to each car completing the test.

Results of Club Elections.

Contrary to expectations, the annual election of the New Jersey Automobile and Motor Club, Newark, N. J., passed off very quietly. An opposition ticket in the field had stirred the club factions and it was anticipated that there would be a fight for the respective offices, but just after the meeting opened the opposition was withdrawn because the workers for this ticket could not induce the man they had nominated to serve. The only contest was for the position of secretary; it resulted in H. A. Bonnell receiving a majority of votes over Charles S. Wells. The officers elected are: President, J. H. Wood; vice-president, Angus Sinclair; secretary, H. A. Bonnell; treasurer, J. C. Coleman; trustees, to serve two years, Dr. James R. English, J. W. Mason, Paul Heller and W. C. Shanley.

Edwin S. George was elected president of the Detroit Automobile Club, at the annual meeting in that city last week. The other officers chosen were: First vice-president, C. A. DuCharme; second vice-president, D. M. Ferry, Jr.; third vice-president, Harry G. Hamilton; secretary, Harry Skillman; treasurer, Louis H. Case; consulting engineer, Samuel J. Serrell; directors—George S. Hodges, Arthur Peck and James H. Flinn. President George named these chairmen of the various committees: House, Arthur Peck; contests, runs and tours, George L. Fleitz; laws and ordinances, D. M. Ferry, Jr.; good roads, C. G. Edgar; entertainment, George S. Hodges. The club now has 188 members, 67 of whom joined last year, and a full treasury.

At the annual meeting of the Grand Rapids (Mich.) Automobile Club, on May 7th, Benjamin P. Merrick was elected president for the ensuing year. The other officers elected were as follows: Vice-president, A. A. Barber; secretary, Dr. D. Emmett Welsh; treasurer, N. Fred Avery. The new board of directors is made up of the newly elected officers and in addition, Dr. Henry Hultz, O. H. L. Wernicke and John T. Byrne. The secretary's report showed a membership of 74, half of which was taken in last year.

At the last meeting of the Knox County Club of Maine, the following officers were elected: President, Orel Davies, of Rockland; vice-president, E. S. Stearns, Thomaston; secretary, C. E. Rising, Rockland; treasurer, Harry Stearns, Camden.

The Hamilton (Ohio) Automobile Club has reorganized with thirty members and these officers: President, C. E. Hemp; vice-president, George P. Sohngen; treasurer, F. W. Whittaker; secretary, Mark Sohngen.

At the annual meeting of the Automobile Club of Maine, held at Riverton, last week, the following officers were elected: President, Henry F. Merrill; vice-president, Dr. N. M. Marshall; secretary, Silas B. Adams; treasurer, Maynard D. Hansom.

Minneapolis Climbs on Saturday.

Saturday next, May 19th, is the date that has been set for the annual hill climb of the Minneapolis (Minn.) Automobile Club. The contest will this year take place on St. Anthony Parkway, a hill that starts with a grade of 4 per cent. and changes to 10 per cent. half way up. Six events, as follows, are carded: For gasoline stock cars listed at \$800 or less, for gasoline stock cars listed between \$800 and \$1,500, for gasoline stock cars listed between \$1,500 and \$3,000, for gasoline stock cars listed at \$3,000 and over, free for all, and for second-hand cars built previous to 1905. This last event should prove of interest for the entrants are bound to sell the car after the event, for the price stated on the entry blank.

The Eternal Feminine.

Why is a woman or a car

Like conscience when you err?

Because, however hard you try,

You cannot "silencer."

Why is a motor feminine?

(The subject dare I touch?)

Because, sometimes if she's upset

She has a strong, fierce "clutch."

Why is a woman like a car?

(Think a moment on it)

Because a woman and a car

Both must have a "bonnet."

Why is a motor feminine?

(You really ought to know)

Because 'till she's inclined to move

You cannot make her go.

Or should the answer be because

A woman and a car

Of pleasure, comfort, worry too,

A funny "mixture" are?

—Ex.

Racemeet Announced, Track in Detroit.

Baltimore's Maryland Motor and Exhibition Co. is encountering difficulties. It has advertised an automobile race meet for May 30, and had expected to secure the famous Pimlico course for the day, but the management of the track has taken an arbitrary stand and it is doubted if it can be secured. However, the promoters aver the meet will be held on the date scheduled whether Pimlico is secured or not. Charles Soules, the well-known Pope-Toledo driver, has been engaged as the star performer.

He Called it a Witticism.

"It may be just one of those inexplicable coincidences that are occurring diurnally, but as I am somewhat of a fatalist, it seems like a perverse freak of fate," said the Broadway salesman. "I read the other day of an automobilist who was touring the wilds of Africa, and he was attacked and devoured by two cannibals." "I see nothing so unnatural in that," ventured a listener. "Probably not," replied the story teller, "but the number of his car was '2-8-1.'" Then he wondered why the crowd looked so weary.

Seven Events on Bay State's Card.

Seven events, with possible additions, will constitute the card for the annual Decoration Day race meet of the Bay State Automobile Association. The events which, as usual, will be run on the Readsville track, are as follows:

Five miles, for stock steamers, owners to drive. First prize, \$100 in plate; second prize, \$50 in plate. Five miles for stock gasoline cars, costing \$1,000 or less. First prize, \$100 in plate; second prize, \$50 in plate. Five miles for stock gasoline cars, costing \$1,001 to \$2,000 inclusive. First prize, \$125 in plate; second prize, \$50 in plate; third prize, \$25 in plate. Five miles, for stock gasoline cars, costing \$2,001 to \$3,000 inclusive. First prize, \$125 in plate; second prize, \$60 in plate; third prize, \$25 in plate. Five miles for stock gasoline cars, costing \$3,001 to \$4,500 inclusive. First prize, \$150 in plate; second prize, \$75 in plate; third prize, \$35 in plate. Ten miles, open to all. First prize, \$150 in plate; second prize, \$100 in plate; third prize, \$50 in plate. Five miles handicap for gasoline stock cars, owners to drive. First prize, \$125 in plate; second prize, \$50 in plate; third prize, \$25 in plate.

Strawberries or Motor Cars.

According to the daily press, the time has once more arrived when rural England is brought to choose between the motor car and the strawberry, which luscious and succulent fruit, it is claimed, is being ruined in wholesale quantities by the dust which the passing cars are wont to induce. How much wiser it would be on the whole, if the same ranting press would confine itself to furthering the dustless highway movement. For in the event of its success in stirring up even the half of the commotion which the anti-motor campaign invokes, the strawberries would still be unharmed, and the farmer would be able to get his crops to market in a fresh condition, unstained by travel, and, if he were to utilize the much berated motor himself, even before the dew had dried from off them.

Portland Extends the Limits.

Members of the Portland (Oregon) Automobile Club are jubilant over their success in securing the passage of the new ordinance regulating the speed of automobiles in the city limits. The city council at the last meeting voted that hereafter, ten miles an hour in the fire limits, and 15 miles outside that district shall be the lawful speed of automobiles. Previously the limit was eight miles an hour.

North Jersey to Race.

Great preparations are being made for the annual automobile meet to be held at the Hohokus race track, Hohokus, N. J., on June 9, by the North Jersey Automobile Club. If the committee arranges an event more ludicrous than the "Get a Horse" race last year the success of the meet is pre-assured.

PERU AS A MARKET

Automobiles now Making Headway There —Possibilities of the Future.

"One of the most striking evidences of the modernization of the old vice-regal city of Lima is to be found in the presence of automobiles on the streets—the medical man in his runabout making professional calls, the alcalde in his big touring car inspecting streets and police vigilance, the heavy freight autos carrying cargo from Callao, the near-by suburb and port, to the doors of Lima warehouses, and in the afternoon parties of young men heading their cars for the Paseo Colon, where heavy traffic is not permitted," writes Consul General Gottschalk in a report to the Department of Commerce and Labor.

"Automobiles are comparatively few in number as yet in Peru, owing to the scarcity of good roads. Intercommunication between coast cities is very slight, the various towns being separated by stretches of loose sand, which means heavy driving for all vehicles not provided with specially adapted wheels; the roads to the interior over the Andes have been much neglected since the advent of rail transportation a half century ago, and in the cities themselves the streets are usually paved with small flinty cobblestones, which are always near at hand, their use doing away with expensive quarrying. The situation as regards motor cars in Peru therefore is much the same as it was a few years ago in more favored countries, in that the automobile will have to bring with it the good roads.

"The first automobiles were imported from America in 1905 by the Lima firm of Elguera Hermanos, the makes being Locomobile, Reo and Olds. Close upon this followed an order for four more, one of which was sold to the municipality of Lima. Some French machines were then imported by private individuals. Then followed the introduction of three American Winton cars by C. Magella, of Lima, and a Columbia electric-motor car by E. Godoy, manager of the Lima-Callao Electric Tramway. Not long after the manager of the Eten Doci and Railway at Puerto Eten, L. Marquina, ordered another from the United States. The five heavy freight automobiles, for service between Lima and the port, were introduced from Germany by the firm of Muelle & Dammort.

"The ministry of public works at Lima is soon to have one for official touring, and Doctor Pardo's inspection of the recent military maneuvers at Infantas from an American-made touring car will lead, I am told, to the Government house being provided with one of our American machines. In the city of Lima particularly, which is gradually being repaved with Belgian block,

there should in a few years be a decided increase in the number of cars in use. There is also talk of certain prominent merchants ordering a delivery car or two as an experiment. This diversified use of the motor car at a time so very near its introduction to the Peruvian public promises well for the future of that line of trade here.

"Freights on cars imported from the United States are, of course, high, still they can compete with the rates from Europe. The cars themselves and their legitimate accessories are free of customs duties. Parts are assessed at the rate of \$0.0974 United States currency per kilo, figured on 10 per cent. of the gross weight."

The Little Chauffeur.



WANT TO TAKE A RIDE ON GOOD TIRES?

Morgan & Wright's new and striking lithograph,
now being distributed gratis.

Advance of Raw Materials.

Within a year, the British metal market has witnessed tremendous increases in the prices of raw materials, and the fact has been attributed in some instances to the growing demand for the better grades of the structural metals by the automobile makers. The quotations for the present time and a year ago range somewhat as follows: Copper, per ton, \$418.6, and \$336.25; tin, per ton, \$844.37, and \$690; steel, per ton, \$33.75, and \$27.50; lead, per ton, \$82.40, and \$67.40; and platinum, per ounce, \$22.12, and \$20.62. Meantime, a dismal prophet has seen in the San Francisco disaster an opportunity for exercising his vocation, and therefore rises to announce that on account of the great demand for structural metals there, the prices are likely to go even higher and remain so for another year at least greatly to the loss of the country.

PROGRESS OF VANADIUM

Production of it Increasing—Chrome-Vanadium Shows Remarkable Results.

Recent reports from abroad show that the development of vanadium steels is progressing there to a notable degree, a growth both in the quality and quantity of the product being apparent. It will be remembered that a great deal has been expected of this compound since, despite numerous difficulties in connection with its manufacture, it serves to such good advantage in the production of a tough and hard metal that test results hitherto unapproached, and almost incredible in their nature, have been obtained from it. Its history and properties were discussed at length in a late issue of the Motor World in which it was made plain that awaiting its further refinement, a great future lay in store for it in the service of the motor car manufacturers. That they are already adopting it to no small degree, is shown in the following extract from a recent contribution of J. Kent Smith before the Liverpool section of the Society of Chemical Industry. He stated in the course of his remarks that:

"Willans and Robinson were now producing special vanadium steel alloys at the rate of 800 tons per annum at their Queensferry works. The ferrovanadium used for the manufacture of these special alloys was obtained from the Llanelly works of the New Vanadium Alloy Company, in South Wales, and contained up to 30 per cent. of vanadium. The chrome-vanadium steels were those which showed the most remarkable properties, and these contained from 10 to 20 per cent. vanadium. The vanadium steel industry is altogether an English one, 80 per cent. of the production being now taken by the motor car and motor omnibus manufacturers of that country. In one case 150 axles of chrome-vanadium steel were ordered and are now running with satisfactory results, and the firm in question has given a repeat order for 400 axles of the same alloy. Chrome vanadium steel has also been exported to France, although an import duty of \$25 per ton has to be paid upon it.

"The effect of vanadium upon ternary and quaternary steels is to increase the resistance to both static and dynamic tests, a result which is partly due, in his opinion, to the action of the metal in retarding the segregation of the carbides during cooling. The highest test yet obtained from a chrome-vanadium steel, after special heat treatment, was a maximum breaking strain test of 103 tons per square inch: this steel showing at the same time great resistance to dynamic and torsional tests. This is a combination of properties which has never been obtained before, and is the peculiar feature of the chrome-vanadium steels. The nickel-vanadium steels were of great strength, but showed much lower resistance to dynamic and torsional tests."

Book About Business Vehicles.

In "Motor Vehicles for Business Purposes," the first technical hand-book on the subject of the modern commercial vehicle in its general phases, makes its appearance. J. Wallis-Taylor, the English periodical writer, who is already well known through numerous technical and descriptive works upon mechanical matters, has qualified himself for the undertaking of this, his latest book, by several years of careful study of the problem of mechanical traction. That a considerable portion of the matter contained in the two hundred and eighty odd pages of the work has already appeared in periodical form, in no wise detracts from its value in consecutive form, nor does the fact that liberal use has been made of other authorities necessarily impair its value to the student.

The first three chapters are devoted to a somewhat abstruse discussion of traction resistances and their causes, together with the development at length of several formulae for the power required in the motor of any type of vehicle. In this, the derivation of the equations is thoroughly worked out, and the value of appropriate constants given. Following this section, the balance of the book is given over to a series of descriptions of existing commercial vehicles of all types, classified according to duty, and segregated accordingly. In addition to the regularly classified types, certain machines for special uses are detailed, such as scavenging machines, commercial travel-

er's wagons, motor ambulances, fire wagons and others, and in conclusion, there is a chapter on costs, which is of an optimistic nature.

Altogether, it is a convenient reference book for users and intending purchasers who wish to familiarize themselves with the entire field, and furnishes a ready means of comparison of the existing types. The descriptions of the individual machines, are, however, painfully concise, giving but little attention to detail, and in many cases simply stating the general nature of the mechanism employed without going into it at all technically. The freedom from catalogue reproductions, which are so familiar in most books upon motoring subjects, is quite refreshing, on the other hand, and if some of the descriptions are brief, it is equally true that none of them are over prolix.

The volume, which is copiously illustrated with diagrams and half-tones, many of which have a familiar look, is well got up, and bound in cloth, (8vo.) by Crosby Lockwood & Son, of London, and is being handled in this country by D. Van Nostrand & Company, of New York.

Scarritt, the Author; his Book.

"Three Men in a Motor Car" is the familiar sounding title of a volume from the pen of Winthrop E. Scarritt, published by E. P. Dutton & Co. At first glance it might be taken for an account of a tour of the Con-

tinental in a car, and probably such was its author's intention when he undertook the work, but before its two hundred and sixty odd pages had come to a close, it finished up by being a rambling, disconnected assortment of automobile history and information with odd bits of poetry here and there as leaven and quotations from the scripture to relieve the monotony, finally concluding with an apostrophe to the automobile. After the wind-up of what was evidently intended for the story, some of the following chapters are devoted to "Man's Ancient Foes"; "The Automobile of the Future," "The Commercial Vehicle"; "Automobile Legislation"; "The Fuel of the Future"—in short, the volume is a "Scarrittism." It is necessary to coin a word to cover it though only those who know the author can appreciate its fitness.

Gasolene Still Going up.

"I wonder where the price of gasolene is going to stop?" observed the economically-inclined owner. "Not long ago the Standard Oil Company, which virtually controls the supply, put the price for 76 test from 15 to 17 cents, and then another cent was added, so that now the price wholesale is 18. That is why yesterday I received notice from my garageman, who has been retailing gasolene at 20 cents, that hereafter the price will be 25 cents a gallon. This last raise certainly ought to add another point in favor of the free alcohol bill."

TIRES 25% OFF

They came our way—a lot of

American-Made Clincher "Seconds"

and we bought 'em.

WHILE THEY LAST

we will sell them at

25% OFF 1906 LIST PRICES.

The Tires are not the output of any doubtful factory but are product of one of the plants in the American Tire Association.

SPEAK QUICKLY.

IT'S THE CHANCE OF THE SEASON.

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OFFSETTING THE CYLINDERS

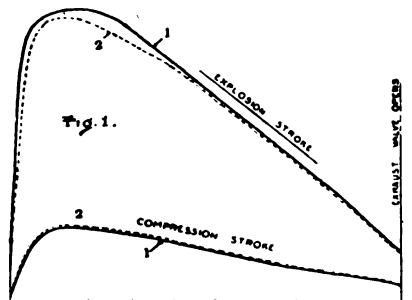
Advantages Afforded by the Practice—The Pros and Cons Discussed.

One of the most persistent of the many petty annoyances which beset the mechanical engineer in his race after perfection, is the reactionary loss of force in the transformation of a reciprocating to a rotary motion, due to the fact that the direct thrust must be distributed at a varying angle to its line of action. This loss, which is commonly attributed to the "angularity of the rod," varies not simply with the position of the mechanism, but also with the relatively proportionate dimensions of the elements themselves, and brings about a continual conflict between the desire to produce a good mechanical movement and one which is not cumbersome. Common practice has decreed certain ratios of connecting-rod to stroke length, for steam and general mechanical practice, and in general, these have been transferred to the gasoline engine without question. Certain considerations peculiar to the single-acting type of motor, however, make it apparent that a different treatment may be given to the parts with good advantage, and consequently, the idea of the off-set crank-shaft is receiving considerable attention from the motor car engineer at the present time.

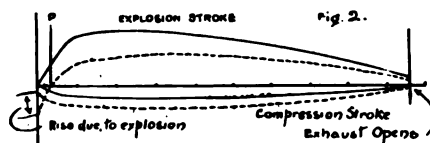
The idea of off-setting the cylinder from the transverse axis of the crank-shaft, is by no means new in gas engine practice, having been under discussion and experimental use for several years, yet its principle is one which is but little understood by the average user, and the resulting effects are apt to be misleading unless all the elements involved are considered rather intimately, and in detail. Probably on this account, it is under discussion in the technical press for a considerable portion of the time, and probably for the same reason no definite conclusion is forthcoming as a result. Yet, the relative advantages and disadvantages are by no means too occult to be readily understood by the non-technical reader, granted only that they are logically discussed, and hence an elementary review of the principles involved, may not be amiss at this time.

In the first place, it is to be remembered that force is only propagated along right lines, and that any diversion of a force from its original line of action is productive of certain corresponding secondary forces dependent upon it, and known as reactions. Also, it should be borne in mind that, according to Newton's first law, every force is resisted by an equal and opposite counter force. Whence it is evident that every force no matter what may be its method or direction of application, must be resisted by a reaction or a group of reactions which in their intensity are just equal to the force itself. This law applies equally well to the

forces exerted within a body of any sort, or to external forces applied to it so long as there is no motion. When, however, the original force preponderates over the combined efforts of the resistances, some degree of motion will result, the product of the unbalanced force and the distance through which it is applied, constituting external work.



Returning to the very commonplace mechanism of the piston, connecting-rod and crank arm, then, the initial force is exerted on the face of the piston, which, in turn transmits it to the connecting-rod, and through it to the crank. But since the connecting rod does not remain in direct line with the force applied to the piston, there must be certain reactionary forces which partially dispell the energy originally applied, and diminish its final value as delivered at the crank shaft in the form of the all-essential torque. As to the nature of these reactions, considering, first of all



the wrist pin and supposing the crank to stand at right angles to the cylinder axis, the piston itself being somewhere in the vicinity of its median point, it is apparent that the line of effective effort must lie along the connecting rod itself, while the primary or impressed effort is in line with the cylinder bore. These two being at an oblique angle to one another, there must be a third force, or else a group of forces, which lie in some other direction, and since there is no other possible point of application for such a force or group of forces, this reaction must be perpendicular to the wall of the cylinder, and must be applied at the wrist pin, and in a direction opposite to that in which the crank is pointing.

This side thrust, evidently depends upon two distinct considerations, namely, the intensity of the primary force impressed upon the piston, and the angle which the connecting rod makes with the axial line of the cylinder. This angle, which is responsible for much loss of sleep on the part of the designer, varies not simply with the position of the crank, increasing from a straight angle to a maximum and back again, repeating on the opposite side once in each revolution of the shaft, but also

depends upon the relative length of the crank and rod. Other primary and secondary forces are to be met with at the crank, and in other parts of the motor, in almost infinite number, but it is upon these three, the primary force of the gas in the piston head, the force directed along the line of the rod, and the reaction against the cylinder wall, that the question under discussion is entirely dependent.

The development of the idea of offsetting the cylinder by a slight amount depends upon the fact that the piston is single acting, and that its labor is expended almost entirely upon the down stroke, the only moderate effort of compression being a minor consideration in the face of the very high pressure of the explosion. That being the case, it is quite apparent that to move the cylinder forward in the direction toward which the crank turns, will considerably diminish the angle between the axis of the cylinder and the axis of the rod at the point of maximum deflection, corresponding to the quarter point in the orbit of the crank-pin. By the same token, of course, the angle formed at the corresponding point on the inward stroke of the piston must be increased, but it may be assumed for the time being that since the load on the piston is comparatively slight at that time, the resulting reaction will be so slightly increased as to be unimportant.

Just what the intimate effect of thus shifting the cylinder will be is best seen by viewing the subject from two points, first, with relation to the effect of the change upon the forces acting upon the cylinder walls in the form of a reactionary thrust, and second upon those acting effectively upon the crank-pin itself.

In Fig. 2, then, are plotted the successive values of the thrust upon the walls for different crank positions, the full line representing the condition when the cylinder is centrally placed, and the dotted curves, the result of offsetting the cylinder a distance equal to about 16 per cent. of the stroke, which is the accepted practice. In the more common central position, it will be noticed that the force increases from zero at the dead centre, to a maximum somewhere about mid-stroke, and thereafter diminishes gradually until the point of exhaust opening. Similarly, the thrust due to the compression stroke, acting on the opposite wall, and hence, in this case considered as negative to the first, increases from zero at the point of closure of the inlet valve to a maximum in the same locus as the maximum of the expansion curve, and then diminishes evenly to zero again at the head end. With the offset cylinder, on the other hand, it is evident that the point at which the thrust of the gas upon the piston and the direction of effort in the connecting rod are in line, instead of being at the dead centre of piston movement, as it is with the centrally placed cylinder, falls somewhere over the dead

centre, and that as a result of this, there must be a point slightly below the dead centre, at which there will be no side thrust owing to the fact that the original force and the connecting rod are in line. This is illustrated in the diagram, for, as will be seen from the dotted line, there is no wall thrust at the point p, which denotes the point where the mechanism is in line with the thrust, which by this means has been transferred from the top of the cylinder to a point slightly below it. From this point, the thrust increases according to the same law as before, but with less intensity, finally decreasing to the point of exhaustion. On the compression stroke, a greater thrust will be observed than occurred in the former instance, but following the same general rule of increase to the upper end of the stroke. At this point, the pressure is seen to increase by a considerable amount owing to the sudden rise of pressure behind the piston due to the explosion, whence, as the piston again travels toward the crank, the thrust diminishes to zero at the point p, and again appears upon the opposite wall later on.

To sum up the results of observing the course of the curves, there is in the offset arrangement a point near the commencement of the stroke at which there is no wall thrust whatsoever, and from then on, the thrust is markedly less than in the case of the central cylinder. On the compression stroke, although the thrust greater than in the ordinary case, it is to be remembered that the load upon the piston is comparatively light, and moreover, although the pressure upon the wall at or near the end of the stroke is considerable, and displays a sudden increase, at this period, the piston is travelling very slowly, relatively speaking, and its actual distance of travel is slight. So that at no point is the thrust greater than in the central arrangement, and as an average, especially on the working stroke, it is far lower.

The significance of this fact will be apparent when it is considered that engine friction depends, insofar as the cylinder resistances are concerned, upon the magnitude of this particular thrust. For friction is measured as the product of the pressure between two rubbing surfaces into a coefficient dependent on the nature of their surfaces. Hence, any diminution in the intensity of the wall thrusts, or any transference of them to some point at which, either the pressure upon the piston is comparatively slight, or the piston itself is traveling but slowly, cannot but be salutatory to the general condition of the machine, and must inevitably result in a diminution of the frictional resistance of the piston within the cylinder.

Turning then, to the stresses in the connecting rod, as shown in Fig. 1, the full and dotted lines having the same relative meaning as in the former case, it will at once appear that with the offset arrangement the pressures, upon the crank pin,

which are measured by the height of the curves at any point of the stroke are lower on the explosion and higher on the compression strokes. At first blush, this would appear to be a most obvious disadvantage, since decreasing the pressure upon the crank-pin would not point to a loss of power at the shaft. And when this is taken in connection with an increase in the crank-pin pressure on the compression stroke, it would appear that the arrangement is totally inadequate for the purpose. That such is not necessarily the case, however, will appear from a moment's consideration of an apparent paradox in the connecting rod thrust.

Under certain conditions, this thrust may become as great or even greater than the total pressure which is being outlayed upon the piston head by the gas, and this taken in connection with the fact that there also is a reactionary thrust upon the cylinder walls would make it appear that there must be a creation of new force in some inexplicable manner. Not so, however, for, as is apparent, the thrust upon the walls, lying, as it does, at right angles to the action of the piston, cannot in any way interfere with nor increase, nor even diminish it. Hence, its existence, and magnitude must be dependent upon the thrust in the connecting-rod, and, by the same token, the latter must be affected in some manner by this, as well, in accordance with Newton's first law, referred to above. That is to say, for certain positions of the connecting rod, the pressure which is exerted along its axis is greater than that which is being impressed upon the piston, and the excess over that amount is wholly accounted for by the wall thrust.

Hence, it is apparent that instead of diminishing the effective effort upon the crank shaft by offsetting, the result of diminishing the side thrust is to diminish the frictional resistance to the motion of the piston, which, in turn, results in increasing the relative proportion of the original force which is converted into rotative effort at the shaft and hence, in increasing the mechanical efficiency of the motor. In other words, although the actual effort displayed at the crank is decreased, the proportion of that effort which remains after the engine resistances have been overcome is increased, and hence the net result is a general improvement.

Hence, it would appear that to offset the cylinder by a certain rational amount, not sufficiently great to create a serious drawback on account of the increased wall thrust on the compression stroke, yet enough to decrease the piston resistance during the working stroke, and thereby lessen at once the actual strain upon the connecting rod, and the engine friction, would be most beneficial. And, indeed, this has been found to be the case, not simply in the few instances where it has been tried in gas engine practice, but also in steam engine work, where it has been applied to single acting motors of small capacity.

Aside from the purely kinematical and dynamic considerations, there is little to be said one way or the other, for as such the cost of construction could not be greater, nor could the matter of framing and staying of the engine bed be affected to any great extent. The offset arrangement has the objection of being unsymmetrical, to be sure, but the degree is so slight as to be hardly worth considering, and the same would seem to apply to the possible objection that the centre of gravity would be thrown out of the axial line of the motor, though, as a matter of fact, this effect could well be counteracted by careful design in placing the valves and cam mechanism upon the off side of the cylinder.

Thus, it would seem, in theory at least, to be a point worthy of deep consideration by the designer, and for adoption in all cases where high efficiency is sought at the cost of expense in design and departure from the common ways of other builders. And especially would this appear to be the case since, as a foreign authority has recently proved by experiment, the maximum wall thrust is reduced by fully one-half, while the increase in wall thrust on the compression stroke is hardly a third greater than the value obtained in the ordinary arrangement.

Gives Either Chain or Shaft.

Whether or not the two methods of final transmission of the motor power to the driving wheels of the car by the chain and cardan shaft are of equal merit or not, seems not as yet to have been fully decided, but however that may be, a certain foreign maker seems bound to get the right answer anyway, for he is prepared to furnish either type to his customers at their option. As stated in his announcements, he makes no pretention of distinguishing between the merits of the two, but offers them on equal terms, the only difference between the cars equipped in the two ways being that one has the countershaft and differential mounted just back of the gearbox, while the other dispenses with this and uses the simple shaft and live axle. The scheme speaks volumes for the business ability of the maker in question, but is not calculated to advance the cause of either school of design to any great extent.

Simple Expedient to Check Fire.

Ammonia gas is said to be effective in smothering the flames of gasoline, and granting this to be the case, a simple and by no means inefficient automatic extinguisher may be contrived by simply suspending a thin glass bottle containing aqua ammonia over a danger spot by means of a light string, so that in case of fire, the latter would be burnt and the bottle would fall and break among the flames. The expedient is so simple as to seem almost childish, yet its employment might serve at some time to prevent a serious catastrophe.

GEAR CHANGING BY PEDAL

Device that Renders it Possible—Ingenious Manner in which Worked Out.

Each year the appearance of new automatic devices for increasing the ease of driving the ordinary type of car are becoming rarer, and by the same token, those which do appear are usually worth considering in some detail, for the reason that they are constructed with a view to overcoming some well-recognized drawback to the operation of the machine. The decreasing numbers of merely catch-penny inven-

ing provided to prevent the gears from slipping out of place at other times.

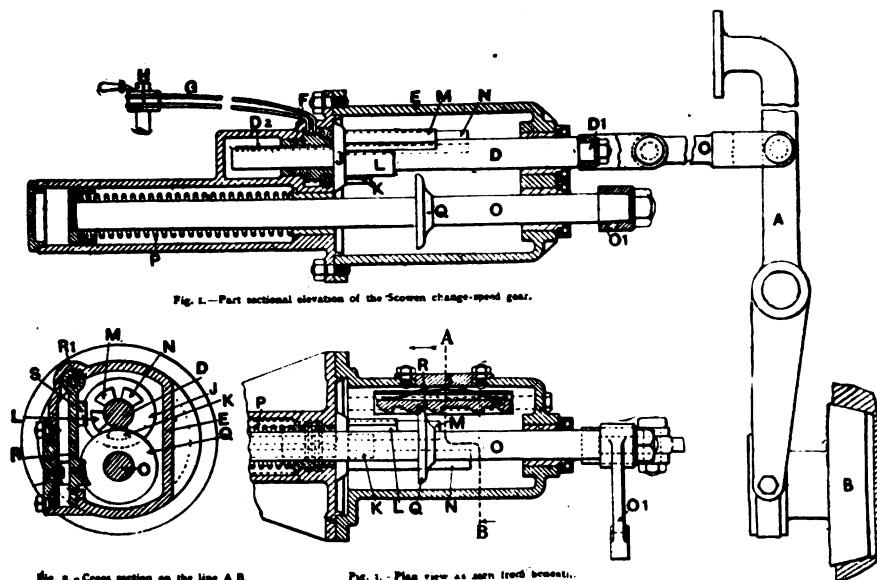
As shown in the accompanying illustrations, the mechanism is arranged to be attached to any existing gear box of the type mentioned, all working parts being enclosed and protected by a suitable casing. The pedal A, connected to the clutch B in the usual way, is also linked by the drag bar C to a sliding member D, which aside from being slidable, may be rotated at will, a swivel joint D' being provided for the purpose. Set into the face of the rod D at proper intervals are four key pieces, K, L, M, N, which are of varying lengths and are adapted to mesh with a disc Q upon a sec-

ond shaft O, when properly turned. A disc J, also is fixed to the rod D. By means of suitable mechanism, which may comprise a universally jointed shaft, but here is represented by a spool and cords, F, G, the rod D may be turned through the medium of the handle H, which is mounted on the steering column and swings over a dial. By adjusting this to register with the number or mark corresponding to any required speed, the proper key, is brought into position to mesh with the disc Q on the shaft O, and, as is evident, upon throwing out the clutch, this latter rod will be thrown to the right in consequence.

Shaft O, is connected with the regular gear box through the shifting yoke O', so that any motion which it receives is imparted to the gears, the motion of the rods D and O always being just sufficient to effect the change of one set of gears. Upon the tail of the shaft O, is a spring P, which serves to keep it always bearing against its stop, and which also serves the purpose of shifting the gears in the opposite direction from that which is effected by the direct motion of the pedal. Since this spring tension is constant, however, it is evident that there must be some method of locking the gears against any lateral motion while the clutch is seated, and this is accomplished by means of the ratchet lock-plate R which is hinged to the case at the point R' and held against the disc by a flat spring. A boss S upon this plate also is touched by the disc J upon the rod D whenever that is actuated by the pedal, so that during the time of the de-clutching action, all restraint is removed from the shifting rod O, and its spring P is permitted to draw it back against whichever one of the keys happens to be set to engage with the disc at the time.

Thus in action, supposing the second speed to be in engagement and the car running along smoothly, when it is desired to change to the third, the operator first sets the indicator to the third position, which causes the shaft D to rotate until the key M comes into position to stroke the disc Q. Upon de-clutching then, the rod D is drawn forward, causing M and Q to move together, the disc J at the same time removing the locking plate R from contact with the side of disc Q, and causing the required change of gear through the medium of the yoke O'. The clutch is immediately seated as usual, and at the same time the plate R is returned to its former contact with Q, thus locking the gears in position. Subsequently, so long as the indicator is left in its present position, any depression of the clutch simply serves to release the locking action of the plate R and throw the strain of the spring P against the key M, but as the release does not occur until the clutch is fully out, no resulting motion in the gear boxes occurs, and upon returning the clutch, the former position of the lock plate is resumed. If, on the other hand, it is desired to change to a lower gear, the indicator is first turned to the proper position, after which the depression of the pedal serves to release the lock, as before, except that there being now no key for the disc Q to fall back against, it is driven by its shaft and the spring P to travel back to the next key which stops it, thereby altering the gear ratio in the desired way.

By this means the function of gear shifting is transferred from the hand of the driver to his foot and made semi-automatic, in that the step-down process is controlled by a spring, and hence is only accomplished when the gears are running at the proper relative rates of speed and the consequent resistance of the ends of the teeth is removed. Also, as there can be no harm done by a novice through de-clutching without first setting the indicator, there should be little danger of mischief being done in learning to manipulate it. On the other hand, however, it is one of those simplifying devices which simplify a process at the expense of added mechanism, and therefore introduces a greater element of liability to error than otherwise would exist in the machine. In the arrangement shown, it is applicable only to gears of the direct shifting type, as already stated, the selective system requiring two and sometimes three shifting bars, but its application to that case is perfectly conceivable with only a comparatively slight amount of alteration.



tions of the same general type, is doubtless accounted for by the fact that the whole trend of the art is toward simplification, nothing which is not absolutely essential to the mechanism being accepted with any degree of favor. One of the few novelties, then, is the Humphrey-Scowan gear changing mechanism, an English device which is applicable to any transmission gearing of the so-called Panhard type, and which entirely does away with the shifting lever, making the mere depression of the clutch pedal effect the changes as required, and with no alternation in its usual method of manipulation.

In a word, the system employs a shifting member which is linked to the clutch pedal by suitable means, coupled with a selective member which may be altered in position by means of a small indicator lever mounted on the steering column, or in some other convenient place, by which means it is made to pick up and mesh any set of gears, when moved by the operator on de-clutching. When set in any given position, the movement of the pedal has no effect upon the gears, but after the indicator has been altered, the first subsequent depression of the clutch, causes the required change to occur. The shifting action is secured by the positive motion of the pedal in the one direction, and by the action of a spring in the other, suitable interlocking means be-

ing provided to prevent the gears from slipping out of place at other times.

As shown in the accompanying illustrations, the mechanism is arranged to be attached to any existing gear box of the type mentioned, all working parts being enclosed and protected by a suitable casing. The pedal A, connected to the clutch B in the usual way, is also linked by the drag bar C to a sliding member D, which aside from being slidable, may be rotated at will, a swivel joint D' being provided for the purpose. Set into the face of the rod D at proper intervals are four key pieces, K, L, M, N, which are of varying lengths and are adapted to mesh with a disc Q upon a sec-

NOW FOR CALCIUM STEEL

Experiments Making in that Direction and the Possibilities they Hold.

In the struggle which is continually being carried on to improve the more refractory metals and make them at once more resistant and more amenable to the practices of the arts, not one of the elements is being overlooked in its possible applicability in one way or another to some of the processes, elementary or otherwise. Thus, within a comparatively short time, the use of nickel and chromium in the production of nickel and chrome steels has been worked to advantage, and other elements are being sought which may be put to an equally effective use in a similar way and with possibly greater advantage from the standpoint of both the maker and the user. Just now, experiments are being made with vanadium, and it would appear that they have been successful to the extent of proving that for certain uses a vanadium steel can be made and used which is superior in many ways to any other variety of that wonderful and, to the uninitiated, mysterious, compound.

Recent consular reports from Germany make it appear, however, that vanadium steel can no longer lay claim to being the most recent departure in the line of steel production, contemporary researches there having developed the possibility of a Calcium steel being within the bounds of future possibility. Just what properties this new steel will develop, if indeed, it can be produced to advantage, does not as yet appear, but its attempted production marks another step in the rapid advance of the exact science of metalurgy. Calcium steel, as such, is already somewhat widely known as a ceramic product, in which form it is composed of finely pulverized feldspar, sand and lime, made into paste, and fired in an oven. The resulting product is an earthenware of the greatest durability which takes its name from the feldspar.

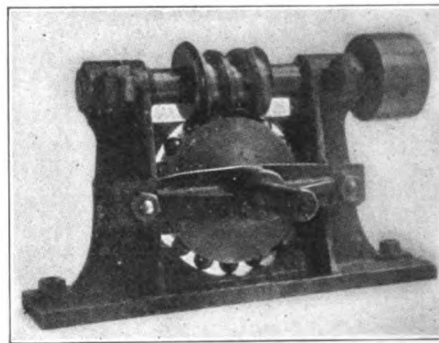
At the works of the Electrotechnical Co., in Bitterfeld, in Prussian-Saxony, means have been found for producing calcium metal from certain minerals in quantities and at a cost which permits it to be freely used for industrial purposes. With the calcium thus provided, a series of experiments are being made, as it is understood, by the Electrotechnical Company itself and by several leading steel manufacturing firms in Westphalia and Rheinland. As to the results of these studies nothing conclusive can yet be definitely ascertained. From an occasional paragraph in the German technical press it does not appear that the results thus far are entirely reassuring. In *Metallurgie* has appeared a statement, based on the extensive studies and tests made by an eminent specialist, to the effect that: "Through these experiments it is proven that calcium metal does not combine with iron in a molten condition, and its use

for the formation of alloys with iron is therefore impracticable."

In the same publication L. Stockern writes as to the conclusion of researches which he describes: "From the foregoing facts the conclusion follows that calcium metal can scarcely be considered as applicable to the production of steel from pig iron, but on the other hand it may be very useful in refining copper and in bronze casting, and will not unlikely replace the hitherto more costly magnesium metal in the refining of nickel."

Worm Drive with Ball Bearings.

From many viewpoints, it is evident that the worm gear is particularly well suited



to the needs of the transmission of the motor car. But up to the present time, its manifold drawbacks, including chiefly its great friction when reversed, which makes driving through the wheel a practical impossibility except under special conditions, and the necessarily high ratio of reduction in speed which it introduces, have seemed to render it out of the question for the purpose. In fact, as is well known, but one firm has as yet undertaken to utilize the principle on a stock machine, and this is as yet not sufficiently well known to serve as a broad commentary upon the success of the idea in this application. Just now, however, there has been presented to the British public, a modification of the worm drive introducing the principle of the ball bearing, which would seem to give a more favorable cast to the future outlook of the worm and wheel in general work, if not in this, its specific application.

In brief, this invention, which is subject to patents by A. T. Collier, of St. Albans, consists in the utilization of a special form of hour-glass worm which meshes with a disc in the periphery of which are set a series of steel balls which take the place of the ordinary teeth. The cup-shaped depressions into which the balls are sunk are equal in depth to about one-half of their diameter, and are formed in true hemispherical shape. The profile of the worm, on the other hand, is made an arc of the circumference of the disc, and its contract is of sufficient length to enable it to embrace three of the balls at one time, thus giving the effect of a triple thread. The tooth shape is semi-circular, and the resulting action is that the balls turn in their sockets,

giving a rolling contact at the worm in place of the ordinary sliding motion.

By this means, the element of friction is greatly reduced, and the sliding, which under ordinary circumstances takes place at the point of contact of the teeth, is transferred to the bottoms of the sockets. Also, the triple contact design, yields a far greater strength of driving power than otherwise would be possible except with the use of a long pitched, triple thread.

In a working model which has been exhibited in London, 17 balls were used in a wheel $5\frac{1}{4}$ inches in diameter, meshing with a worm which is 3 inches long, the balls being $\frac{3}{4}$ inch in diameter. In this, although the ratio of drive was 17 to 1, the drive could be reversed with great ease. That is to say, the worm could be driven by the wheel without the attendant loss of power which would be expected, considering the great reduction.

Ample lubricating surface for the balls is provided by the retaining cups, and as the balls are held in place when out of mesh by a suitable retainer, the drive is said to be silent as well as efficient. Moreover, it is claimed that the device is not expensive to manufacture, and hence its early adoption in motor car construction is looked forward to with considerable interest by engineers.

Strike Injuring French Trade.

According to cable reports the general movement that has affected industry generally in the French capital has extended to the automobile and coach building trades which are practically crippled, and as the French industries in this field center in Paris the work of turning out cars is at a standstill. A few firms that have special contracts with their mechanics are said to be running their plants, but they are hardly a drop in the bucket.

The situation at the C. G. V. plant may be taken as indicative of the state of affairs prevailing throughout the industry. On May 2 the force stopped work after having completed eight hours and upon returning the next morning found the factory closed and a notice on the doors dismissing the entire staff by order of the management. A few days later they returned to ask for their wages, which were refused, the men being informed that they could sue for them if they wished to.

Prospects for the settlement of the strike appear to be remote, some authorities contending that it will blow over in the course of a few days, while others think the end of a month will not see a resumption of work. The press as a whole is calling upon the manufacturers in strenuous editorials to bring about a speedy settlement in order that foreign manufacturers of automobiles may not do irreparable injury to the French industry during the period of enforced idleness.

The tenor of these editorials show how jealous is France of its export trade and how fearful it is of losing it.

NO CARBURETTER NEEDED

This Novel Motor Uses Liquid Gasolene and has Sixteen Cylinders.

Without doubt, the most extraordinary results thus far obtained in a commercially successful motor of the internal combustion type where gross weight per horse power is concerned, are to be found in the Antoinette motor, a French production. In this the weight per horsepower has reduced to slightly more than 2.2 pounds, or just in excess of a kilogram. More than this, it embodies a number of novel features hitherto unattempted in motor design. The number of cylinders varies from 8 to 24, the engine with which the makers had the greatest success having 16. They are placed at an angle of 90 degrees to one another and 45 degrees to the perpendicular—the familiar V-setting.

There is but one crank to each pair of pistons and connecting rods, and the engine is made reversible by the extremely simple expedient of changing the relation of the cams with regard to the position of the piston and its stroke. To effect this, one of the two to one cam-shaft pinions which drives its shaft through a simple clutch mechanism, can be varied through an arc of 90 degrees. The clutch consists of nothing more than a pin which can be pulled out of engagement by a knob provided for the purpose, this permitting the pinion to revolve a fourth of a revolution when the pin again engages by dropping into a second hole. This rotates the cam-shaft through a quarter-circle with reference to the piston's position without in any way disturbing the ignition timing, as the latter is operated by an independent pinion from the main shaft. A single high tension coil working with a specially designed commutator is employed.

The carburetter is dispensed with entirely, the liquid gasolene being introduced directly into the cylinder through automatic inlet valves, in connection with each of which there is an atomizer. All are fed by means of a small plunger pump which delivers the gasolene directly to all of them at a pressure of about 30 pounds to the square inch, this being varied at will by regulating an eccentric on the pump. This not only dispenses with the cumbrous and complicated inlet manifold that would be required by such a multiplicity of cylinders, but also insures greater certainty of action, as each cylinder receives its fuel supply independently of the others.

Current standards of construction are also radically departed from in that high tensile aluminum castings are employed as cylinder heads. These are bolted directly to the iron castings upon which spun brass water jackets are clamped in position. The exhaust valves operate in these cast aluminum heads on inserted steel seatings, all the exhausts, even in the 24 cylinder engine, being operated by the same cam-shaft. One

of the chief advantages claimed for the use of aluminum in this connection is its capacity as a heat conductor, in which respect it is almost equivalent to silver. While its introduction was primarily to reduce weight, it also gives a maximum of cooling efficiency to the exhaust valves.

Why Clutches Require Attention.

Despite the all around efficiency which the multiple disc type of clutch is giving in service, especially in point of the superior starting facility which it affords through its provision for slipping momentarily, it is to be remembered that from this fact alone, it requires a due amount of attention from the user. For the very fact of the slipping action involves the generation of a certain amount of heat which must be absorbed by the lubricant, and by the same token, unless the temperature is kept properly reduced, a deleterious action will result, similar to that which will occur in any bearing which has been overheated. That is to say, the plates will heat, and their surfaces will become abraded, finally cutting one another deeply, and even becoming set, in extreme cases. It is of the utmost importance, therefore, that the required amount of oil be kept within the clutch enclosure at all times, that any excess of the slipping action be avoided as far as possible, and that the entire mechanism be cleaned out at not infrequent intervals, flooded with gasolene, and re-filled with pure oil, which must, of course, be of the prescribed consistency.

Greens that are Popular.

An observant authority, who has been taking note of the prevailing colors used by the painters of motor cars, calls attention to the fact that the majority of the greens used, are of the deep shades, many of them so dark that they appear black unless viewed in a full light. "Quaker green," both in the medium and dark tones, is exceedingly popular, he says, as is olive green. This, he attributes, to the warmth of affect in these shades which is commonly lacking in many of the other dark green colors. Still another shade which is impressing itself upon the popular taste just now, is known as the English surrey green, which gives a cast to the surface suggestive of prussian blue to a certain extent.

How the Wrench got its Name.

Nothing is more amusing than to ferret out the names of some of the commonest utilities of life and discover that in the original they were far from what they now are supposed to be. Thus, the monkey wrench, which from its name is ordinarily supposed to have been so termed in derision at first, proves to have been named after its inventor, Charles "Moncky," who disposed of his patent for some \$2,000 and outlaid the cash in Brooklyn real estate many years ago.

BENEFITS OF MOTOR BUSSES

Their "Flexibility" as a Means of Relieving Crowds and "Rush Hours."

One of the greatest advantages of the motor vehicle as applied to the transportation of street passenger traffic is that it is not confined by nature to any stated routes, and therefore is amenable to any such variations alike in route and schedule as may be desirable under special conditions which do not ordinarily obtain. Thus, at times when the flood tide of traffic is setting in any given direction it is possible to concentrate all available vehicles to that work, returning those which are light by the shortest and most expeditious route and, since they may pass each other at will, permitting certain of them to run entirely light, thereby saving their running time and giving greater stress on the bulk of the work at the point and in the direction where it is most needed. Thus, in cities, where the flow of passengers is mainly in one direction in the morning and in the other at night, the bulk of the machines in use may be returned to the starting point unloaded, while only a number sufficiently great to maintain the schedule, are compelled to carry passengers in the reverse direction. On Sundays and holidays, also, the same advantage applies still further, in that the vehicles may be used to carry passengers to and from church or recreation centres, their regular daily routes being either abandoned, or held open by a comparatively limited number of vehicles. The saving in cost to the company effected in this way, and the added convenience to the patrons, would be very great.

In a recent lecture during which a comparison of the methods of "tramway" and motor bus passenger transportation were under discussion, an English authority brought out this advantage, and also pointed out how much it might mean to the traffic managers of a route in time of especial congestion. The racy way in which he emphasizes the idea, brings out the point most admirably, and shows one of the most marked features of motor traffic which at once differentiates it from all sorts of traffic by rail, and at the same time exalts it correspondingly:

"There are certain days—such as Saturday afternoons, Sundays, and holidays—which are the despair of the tramway manager," he says. "He sees the multitude he would fain carry, going to and from certain places ready to pay their way; in fact, he would not choke it off if he imposed rates as high as the traffic would bear—as our railway friends say when they are in narrow-minded moods. But the shoe pinches on the other foot, because it is the track capacity and rolling-stock which will not bear the offering traffic. Here the auxiliary fleet of cruising omnibuses would come in,

not only as proper auxiliaries alongside the tramlines on the routes of main movement, but as available to be sent wherever the holiday tide was flowing. Because it does not follow that the routes which are most used from Monday morning to Saturday noon are those most favored on Saturday, Sunday, or a holiday. The inflexibility of tramways is a cause of loss to themselves even where they have the luck to terminate near a place of great popular resort. Because things like football matches and fireworks only disport themselves at definite hours. When the referee signals the cessation of hostilities by finally blowing his whistle, or the Grand Boquet of Rockets has screamed to the Zenith, and the crowd has given its last yell or groan of wonder (as the case may be), it descends like the flies of Egypt on the tramway officials. They are hampered by the fact that (if at a terminus) only one or two cars can be there at one time, and that certain shuntings and perch matters must be done to each in turn, or (if it be a running track point), that long congestive stops must be made to let the flies swarm on the cars—already fairly filled with ordinary passengers. Given a fleet of auxiliary omnibuses a good engineer will have them all in fettle on days of public rejoicing, and given a good traffic man he will have them plying early to the match or display, and then concentrate them in side roads en masse till the 'scaling' of the crowd come, and then will call up his swift reserves. Be it noted also that on such occasions the omnibus service can be made 'extra special express' by going and returning by practically deserted side streets. Holiday crowds start from definite centres and return from the like, largely at ascertainable hours, so that (given a fleet of flexible vehicles) due concentration of plant, and the shortest and best routes, can both be thought out and carried out with ease."

British Railway Builds Special Cars.

Following the lead of the American railroads, the Midland Railway of England has just had constructed a number of "vans" especially designed for the transportation of motor cars. They are 31 feet long, and 8 feet wide. Internally, they are fitted with sliding bars to which the contained vehicles may be strapped while in transit. They are capable of holding two motor cars at a time, have both side and end entrances, and are provided with special ventilators which are designed to screen the in-coming air free of dust.

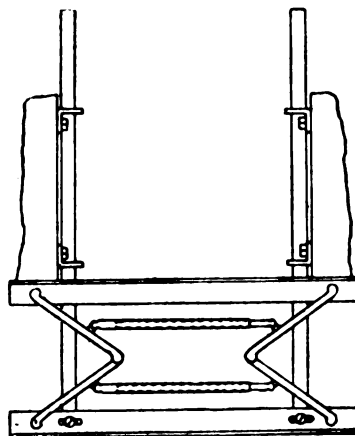
Jamaica now Requires Steel Drums.

Gasolene imports into Jamaica henceforth must be shipped in steel drums, writes Consul G. H. Bridgman, of Kingston, under date of May 14. The new regulation is contained in the "petroleum law of 1906," which has just been ratified, and which provides that inflammables giving off vapor at lower than 95° can only be imported in this way.

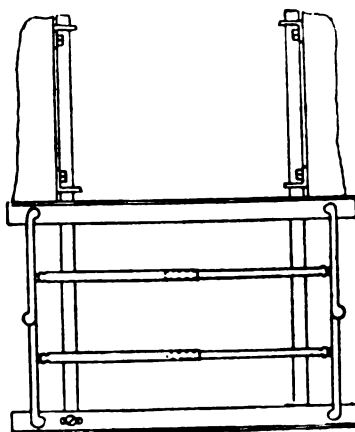
TO CARRY EXTRA LUGGAGE

Simple Disappearing Rack for the Purpose —How to Make it.

Although the majority of the touring cars now on the market are provided with ample means for carrying luggage, there are not infrequently cases when it is desired by the owner to increase it sufficiently to



enable a small trunk or several bags to be taken on without inconveniencing the passengers. For this purpose, nothing serves to better advantage than a suitable rack mounted at the rear. If of the hinged type, this is apt to be unsightly when not in



use, and if dismountable, it is quite likely to be left behind when most needed.

A far better arrangement is the disappearing type of rack here illustrated which when not in use, may be slid in under the frame completely out of sight. As will be seen from the cuts, it consists of a pair of side members of angle iron which are held to the frame by means of two pairs of forged brackets riveted in place underneath. At the rear extremities of these is bolted a criss piece, also of angle iron, and a similar piece is affixed to the rear cross member of the frame. Between the two cross pieces are a couple of jointed braces, such as are used in folding tops, and joining them midway between the joints and the cross pieces are a couple of telescoping braces which may be made of steel tubing of different sizes, hinged to the jointed members by suitable solid pieces.

When fully drawn out this rack is amply strong to carry a steamer trunk or several grips, which may be strapped in place in the usual way, and when not in use, it may be slid close up against the back of the chassis, the braces and telescoping rods being contrived to lie within the lap of the two cross angle irons. Such an arrangement is simple and easy to build, and will serve its purpose most admirably under all sorts of conditions.

To Obtain Fine Finishes.

"As most of the leading carriage makers are now building automobile bodies, it follows that a high standard of carriage painting will soon be manifested in automobile work," says a carriage painting expert. "The eye of the prospective automobile purchaser must be pleased with a harmony of colors and finish. Before priming, the aluminum used in the construction of bodies should be thoroughly roughened with No. 2 sandpaper, in order to make the priming hold. A primer that is to be wiped off is most suitable for aluminum. After it is filled up and rubbed out in the usual way on the high limousine or tonneau, the body should be painted after the style of a brougham or landaulet, with panels in color and balance of the body in black.

"The frame of the chassis should be in black, and the wheels, springs and axles a lighter shade than that used on the body panels. The materials to be used are: Royal blue, glazed with fine line of yellow on moldings and ¼-inch line on chassis; Munich lake or carmine with striping of lighter shade, or blue panel with fine line of yellow; light yellow for wheels, springs and axles, light blue points or Munich lake panels, with fine line of carmine and carmine wheels, springs and axles and black striping; olive green, which is best suited for tonneau bodies, with heavy, fine line of carmine—all of which make very attractive combinations.

"Many bodies when on exhibition at the various automobile shows were very rough, and showed plainly to the experienced eye, that they were not properly rubbed out of rough stuff. I venture to say it cost about as much to rub them as they were rubbed, as if it were properly done. Not enough importance is given to rubbing rough stuff, as it is the general impression that any one can do this sort of work. If people would stop to think, they would conclude that it is a very important matter, and, when done, will go a long way toward making a smoothly finished job.

"The ground coat over rough stuff for light green panels, should be made of lamp black and yellow, making it a few shades lighter than the color. The painter will find, for most light greens, that one coat of color is sufficient. For light greens on the olive shade, if the color is solid, clear rubbing varnish will make the better job. In applying color varnish on these shades, whenever the color is crossed in the final brushing it will show."

EVOLUTION OF THE BODY

How the Tonneau Came About and Why it no Longer is a Tonneau.

That all the world moves in a stereotyped cycle of rotation, is a thing too well known to need demonstration, too evident to require comment or to elicit surprise, and yet there are those who express amazement at the way in which the return of fashion is marked from year to year, and who would even maintain that it is the result of coincidence rather than a natural adaptation of what is old to certain newer requirements. This law of the universe has been particularly well marked in the case of automobile body design. And never was it more evident than at the present time that the body builders are not simply loth to get away from the forms of vehicle developed in horse drawn types, but that even were they so disposed, their innovations would meet with but a chilling reception at the hands of the buyer. An apt illustration of the inevitable way in which the old forms are constantly being revamped and adopted is to be seen in the latest designs of the French builders which are assuming the proportions of the well-known victoria, but little modified as to type, and mounted upon a chassis which is dropped at the point of entrance, the latter in this case being absolutely barren of any form of door or barrier between the passenger and the step.

Regarding the manner in which the development of the automobile body has come about, and the invincible manner in which the name "tonneau" still adheres to a form which has absolutely no claim to it, a writer in the Autocar presents a rather spicy study in evolution.

"Two generations hence," he says, "while our grandchildren are discussing the purchase of a motor car, some curly-headed, blue-eyed rogue, anxious to air his recently acquired French, will ask, 'Why 'tonneau' body, father?' Father will ponder the thing for a moment with a mental picture of a cask contrasting oddly with the catalogue—illustration of the tonneau body—replying weakly, 'I don't know, my boy, I expect it is just a name.' As if anything in the world were causeless! Possibly even to some of us in 1906 the origin of the term may be obscure or only half understood. In point of fact, the evolution of the tonneau is one of the most extraordinary phases of a romantic business.

"This is how it came to be. The men who delved deep into the unknown for the secret of the car during the pioneer days of 1893 and 1897 had little time to waste on coachwork. Every dawn brought a new mechanical problem which sunset left too often unsolved. With the perfecting of the mechanism came the desire to superimpose

a handsome body, and the Frenchmen turned instinctively to curves. Curiously enough, the mail phaeton supplied the base idea. Two comfortable seats in front softly cushioned in handsome cloth—two uncomfortable skimpy seats behind in shiny leather. The car was fundamentally two-seated. With a demand for four equally luxurious seats came the double phaeton, a duplicate of the front seat being placed in the rear. For more than four seats, the waggonette. At this point the motor car, qua body, was a metamorphosed horsed vehicle. With the dawn of 1898 came a new era. 'All the world,' said the quidnuncs, 'want a light two-seated car of moderate price just for the Mr. All-the-World and his wife.' For 'wife' we may safely read 'any feminine person of good appearance.' The result of the clamour was the 'voiturette'; short in frame, two seats side by side, gorgeous paint and polish—flimsy partout.

"The 'solitude-a-deux' theory proved its inherent truth, but there was a fly in the amber. Mr. All-the-World, besides the encumbrance aforesaid, possessed mothers-in-law and friends. Could he have a third seat? 'Yes,' answered the obliging maker, 'he could.' So a spider seat or 'dicky' was added behind, and the unhappy occupant bore a strong resemblance to Mahomet's coffin—'neither of heaven nor earth.' More than this, M. All-the-World frequently soiled his lavender kids in a vain endeavor to bring a recalcitrant motor to a sense of decency. With 'aunt' in the dicky, there was no room for a boy. 'Could we have four seats?' The maker considered. If two seats were put behind in the manner of a double phaeton the back axle would have to bear double the designed load. The weight of the additional passengers, too, might conceivably precipitate a catastrophe—tilting the car backwards. The dog cart with seats 'dos-a-dos' was the hors concours. No one would occupy rear seats so arranged. To lengthen the wheelbase of the frame seemed imperative, but, unluckily, most makers held large stocks of short frames designed for two-seated bodies. Necessity, say those of old time, stimulates invention, and some genius suggested the fitting of the two seats waggonette wise, tucked up closely to the back of the present phaeton front seat with a little door. Thus was born the 'tonneau,' so called from the fact that the added seats bore a strong resemblance to split casks or tubs. As the early 'tonneaus' were constructed to fit existing frames and bodies it is not very surprising on that account to learn that they were ludicrously uncomfortable. Still the little door at the back appealed to the childish love of toys which characterizes the adult of all ages. No one seemed to realize that the tonneau was forced, unnatural, and inconvenient. To enter the rear seats one was constrained to wade into the muddy road; to distribute a fair quarter of the available space to each leg constituted a formidable undertaking.

"Mirabile dictu. As succeeding designs provided for an adequate length of frame the wretched 'tonneau' flourished exceedingly. Blind, unthinking fashion! Then came the tonneau with an entrance obtained by a process redolent of legerdemain, performed by the unwilling occupant of the near front seat. That scheme proved short lived, and no wonder.

"Now, the very latest thing is the side entrance tonneau, which is a sensible double phaeton. In other words, we have evolved a form of body by a circular process, which is neither more nor less than the body we possessed in 1896. It is most emphatically no 'tonneau,' but we shall continue to call it a tonneau if for no other reason than that luminously embodied in the ancient pun *lucus a non lucendo*."

What the Strike did to Chicago.

Visitors to Chicago's "automobile row" last week were somewhat at a loss to decide whether Chinatown was moving into the sacred precincts of motordom, or a mistake had been made in the location by the passer-by himself, who began to think he really was in the Ghetto.

"Look at those hieroglyphics on the window," insisted a student from the Art institute; "are they not beautiful types of Hebraical letters?"

"Not on your life," declared her escort. "That is a sample of Chinese nomenclature. I saw some just like it on a chop suey bill of fare once when we were slumming."

"It looks like Greek to me," said a third visitor. And so it continued until darkness fell like a mustard plaster and eased the pulsing throb of discussion.

Investigation of the phenomena, however, disclosed the fact that moving days on the "row" had necessitated relettering of several windows, and when the appliers of the gold leaf had about half completed the job a walking delegate wandered along and ordered a strike. When this incident occurred the artists had reached that stage where the leaf was roughly applied in those irregular lines and gobs which are chaos to the observer, but out of which the sign-makers weave a system of words and fancy lines which attract unsparing enthusiasm from the chance observer.

Some of the concerns awaiting the return of the artists are the Hamilton Automobile Co., Dan Canary, "Jerry" Ellis, Arthur G. Schmidt and the Bennett Bird Automobile Co. Some of these have moved only from one floor to another, some just across the street, and others have moved almost a block.

Mayor Wants Hiring Charges Halved.

Mayor Becker, of Milwaukee, Wis., will ask the city council to pass a resolution against overcharges for automobile hire. The customary charge is now \$4 for the first hour; the young and respectable mayor believes that half the amount would be just.

HOW FRANCE BUILDS ROADS

And Pays out Nearly \$32,000,000 to Maintain them—Now Being Beautified.

Of all other nations, France has ably earned her enviable reputation for supremacy in the matter of highway structure and maintenance. For nowhere, are more uniform and better road way conditions to be found, nor a more perfect system of upkeep, than there. The system graduates all thoroughfares into six classifications, all of which are under the supervision of certain stated authorities, according to the nature of their location, and the amount of traffic which they are called upon to bear, and, by the same token, all are perpetuated according to set rules which are laid down by the government, and carried out in accordance with its mandates. Of the details of the method and the nature and development of the system in itself, Consul Brunot, of St. Etienne, writes in a recent report to Washington:

"France had wretched roads in former times, and this notwithstanding the good example left by the Roman occupation," he says. "Indeed, high road accidents were a favorite stock in trade of the old romancers. Now the roads are not only nearly perfect and good at all seasons, but are beautified by artistic stone bridges and frequently lined with fruit and shade trees. Spasmodic efforts were made to better the roads, mostly around Paris, under Louis XIV (1643-1715), but it was not until about 1775 that the serious work of building great roads of national extent was undertaken, and Napoleon I carried it forward vigorously as a part of his military schemes, uniting frontier points with the capital. Never has the work ceased, except during periods of war, and the more difficult sections, at first left to a more convenient season, are steadily being built, while new cut-offs and connecting links are continually being declared open for service. The roads are divided into six classes, as follows:

"1. National roads, built and maintained by the government, 21,300 miles.

"2. Departmental (State) roads, built and maintained by the political divisions traversed by them, 15,700 miles.

"3. Principal local roads, traversing two or more townships (communes), are maintained by them with government aid, 124,000 miles.

"4. Secondary local roads, the same as the preceding, except that they are of less importance, and are maintained by the townships under supervision of the Government, 150,000 miles.

"5. Minor local roads, still less important than the foregoing and maintained by the townships under the supervision of government engineers.

"6. Rural roads, lanes of small import-

ance, entirely maintained by the townships without any intervention or supervision by the government.

"The rules for grades are—national roads, 3 per cent; departmental roads, 4 per cent; principal and secondary local roads, 5 per cent., which is the maximum allowed, except in extremely mountainous regions or on the most difficult sections of the less important roads, where there is too little traffic to warrant the expense of reducing the grade to within the rule. The method of construction formerly was to grade the bed level and lay a stone dressing for a depth of 17½ inches in the middle, diminishing to 14 inches at the sides, but experience proved that a better plan was to give the earth bed the same rounded form intended for the surface, and the thickness of the stone layer was reduced to 11½ inches. This is the method now generally followed, and about 8,700 miles of the most recent construction have been built on this plan, the others being macadam roads, built of material found on the spot, and some minor roads of gravel and earth.

"The materials used vary with the nature of the stone found in the different localities. A standard of the quality of materials has been established to serve for comparison and each kind of stone used is given a number, ranging from 0 to 20, which represents its particular value. Porphyries, being the best, are numbered from 10 to 20, while pudding stone, the worst, varies from 4 to 8. In the north central departments medium quality material (8 to 13) has been used, this being better economy than transporting a superior quality from a long distance.

"The steam roller is now general in use and permits of repairing the whole width of a road at one operation. The new work is always well watered in advance of rolling. Great care is given to the construction of drainage ditches and their relief by frequent traverse culverts. On grades, these gutters are separated into short levels by steps of stone forming a series of miniature waterfalls, by which plan the flood water makes its descent without erosion of the ditch or causing damage to the sides of the road.

"The cost to the government for maintenance of roads, bridges included, averages per mile: National roads, \$206; departmental, \$180; principal local, \$129; secondary local, \$57; amounting to an annual expenditure of \$31,615,668 for maintaining 311,000 miles, or about 65 cents per inhabitant."

Many Terms for Same Man.

In England the proper term for the man who drives a motor car for pay seems to be rather indefinite. In an afternoon paper the following were a few of the positions advertised vacant: "Driver," "Gentleman Engineer," "Experienced Mechanic," "Chauffeur Handyman," "Chauffeur Chef," "Motor Driver," "Driver Mechanic," "Chauffeur Mechanic," and "Motor Gardener."

THE ORIGINAL CHAUFFEURS

How their Hold-ups and Scorching Differed from their Modern Namesakes.

Tracing the derivation of words which have come into prevalent use, is an occupation which is by no means unpleasant, and it is frequently quite amusing to those who have nothing better to do. In particular is this true when it comes to hunting down old nouns which have recently come into a sort of use in due accord with the spirit of the times, but which in the original were employed in a far different manner. Thus, the Figaro explains at some length the history of the word chauffeur, which already has come in for quite enough abuse in the way of mis-pronunciation, and would seem to have merited a period of comparative respite from discussion in that account alone. Figaro, however, must needs discover that in the olden time the chauffeur was a person a deal less popular than he is to-day in some quarters.

It seems that during the year 1795, or thereabouts, there sprang up in France, groups of men, who, fantastically dressed, and with their faces blackened, prowled about desolate spots in the country districts working all sorts of evil and pretty generally invoking the terror of the country folk. Their custom was to first strangle their victims, and then drag them before the fire, where their feet were toasted until they consented to reveal the hiding place of the family treasures, which summary argument usually proved all effective and convincing. Whence, in some way, these gentry, who operated largely in the eastern and southern districts, came to be known as chauffeurs. Later the term was applied to the soot begrimed individuals who fed the fires under steam boilers, and finally was transferred to the driver of any self-propelled vehicle.

But, however much the chauffeur of the day may "burn the earth" in his eagerness to race the hands off the clock, it is safe to say that he no longer toasts his victims, though there be those who affirm that his ways result in a certain amount of scorching and bleeding which amounts to an extortion hardly less insistent than the traditional method. Hence, it may be after all, considering this latest story, that Mark Twain's "mahout" or even the plain Yankee term "driver," carries less of opprobrium than the borrowed French which sounds so well, and means either a scoundrel according to the ancient, or a hireling in the perverted modern application, and that the time may come when this, or a simon pure, brand new word, will come to supplant it and wipe out its traditions, and its inferential malice.

Peoria, Illinois, has made its bid for recognition and wants the world to know it. According to statistics of the city clerk there are 131 automobiles in the city.

The Week's Patents.

819,303. Wheel-Mount for Vehicles. Geo. D. Munsing, New York, N. Y. Filed Sept. 26, 1905. Serial No. 280,201.

Claim.—1. In a wheel-mount, the combination with a fork of a support, means at each side of the support in the fork to yieldingly and non-rotatably guide the same, and a wheel-spindle secured to said support between said means, substantially as described.

819,302. Wheel-Mount for Vehicles. Geo. D. Munsing, New York, N. Y. Filed Sept. 22, 1905. Serial No. 279,660.

Claim.—1. In a mount for a vehicle-wheel, the combination with a stationary member on the vehicle; of a swinging member pivoted at one end thereto and having a friction face; means to guide the opposite end of said swinging member and having a friction-face co-operating with the face on the swinging member, means between the two members to cushion the movement of the swinging member and means projecting from the swinging member on which a wheel is rotatively mounted.

819,334. Transmission Gear. Alexander T. Brown, Syracuse, N. Y., assignor to The Brown-Lipe Gear Company, Syracuse, N. Y., a copartnership. Filed Nov. 16, 1905. Serial No. 287,580.

Claim.—1. In a transmission-gear, a case having opposing walls formed with integral hollow hubs, caps for the hubs, a revoluble shaft within the case formed of greater length than the distance between the opposing walls of the case, the shaft being supported by the hubs, and gears fixed to the shaft, the gear nearest one of the hubs being of less diameter than the internal opening of said one of the hubs, substantially as and for the purpose specified.

819,337. Vehicle Wheel. Samuel S. Childs and William Childs, Jr., Bernardville, N. J. Filed Aug. 22, 1905. Serial No. 275,219.

Claim.—1. A wheel comprising a hub, a rim, and a series of ogee curved spokes, each spoke being secured at one end to the hub at a point in the hub's periphery, and attached at its other end to the rim at a point approximately diametrically opposite to the point of attachment to the hub.

819,344. Vehicle Wheel. James F. De Jarnette, Omaha, Neb. Filed May 22, 1905. Serial No. 261,494.

Claim.—1. A vehicle-wheel, in combination, comprising a hub; coiled springs; a tire; a series of spokes rigidly mounted upon the hub and extending therefrom a part of the radial distance from the hub to the tire; annular rims; said annular rims being mounted rigid upon said series of rigidly-mounted spokes; resiliently-formed spokes; said resiliently-formed spokes being each composed of two tube portions having suitable spring-bearing ends, said tube portions of each spoke being of different diameters and of a length less than the radial distance from the hub to the tire; and the end of one tube portion being pivotally mounted upon the hub, the end of the other tube portion of each tubular spoke inclosing the opposite end and part of the body of the other tube portion and forming within said tube portions a radially-extending chamber; one of said coiled springs being seated within each of chambers and extending lengthwise therein between said spring-bearing ends of said tube portions; said resiliently-formed spokes being disposed between and closely adjacent to said annular rims.

819,374. Elastic Tire for Road Wheels. Edward C. F. Otto, London, England, as-

signor of one-half to George Frederick Richardson, Lee, England. Filed March 7, 1905. Serial No. 248,933.

Claim.—1. A rubber tire having brass-coated metallic studs vulcanized into its tread, substantially as described.

2. A rubber tire having studs vulcanized into its tread, the studs having bases embedded in the tread in order to distribute the pressure, substantially as described.

819,421. Clutch Mechanism. Benjamin A. Gramm, Chillicothe, Ohio. Filed Nov. 29, 1905. Serial No. 289,587.

Claim.—In a clutch mechanism, the combination of a driving-shaft; a wheel mounted thereon and formed with a flange; a two-part band adapted to be tightened around said flange one pair of the opposed ends of said band being connected by a turnbuckle and the other pair of the opposed ends of said band being positively secured to one end of each part of said band, the other end of each of said levers being connected by a spring, said levers being each provided with a roller on opposite sides of said shaft; said spring; said turnbuckle; a bracket upon which said levers are fulcrumed; a sleeve mounted loosely upon said shaft and secured to said bracket; and a cone slidable along said sleeve and adapted to enter between said rollers to swing said levers and tighten said band.

819,436. Magnetic Metal Collector for Gear Casings. George H. Jones, Philadelphia, Pa. Filed July 14, 1905. Serial No. 269,610.

Claim.—1. The combination with a gear-casing, of a magnetic bar therein, substantially as described.

2. The combination with a gear-casing, of a magnetic bar secured therein, substantially as described.

819,469. Clutch. Nels E. Swanson, York, Nebr. Filed Sept. 11, 1905. Serial No. 278,045.

Claim.—In a clutch, the combination of a shell or hollow drum adapted to be attached to one member, a web located in the drum and adapted to be attached to the other member, said web having an annular groove, an expansion-band having an annular rib fitting loosely in the groove, and means in the drum for operating the band.

819,503. Tire for Vehicle Wheels. Victor E. Belledin, Paris, France. Filed Nov. 16, 1905. Serial No. 287,560.

Claim.—In an elastic tire for all kinds of wheels the combination of a felly, spring-plates secured transversely on the felly and having their lateral portions curved outward and toward each other, their ends being bent inward toward the centre of the wheel, a tread-rim of flexible material and T-shaped in cross-section, the median rib of which is engaged between the ends of the spring-plates and the lateral portions of which spread on the curved outer portions of the said spring-plates, and flat springs curved into C or O-shape secured within the said curved spring-plates and extending under and at a certain distance below the inner edge of the tread-rim so that the said rim shall come and bear on the said inner springs when it is pressed toward the center of the wheel, and a cloth cover spreading on the lateral portions of the said spring-plates and having its middle engaged between the ends of the latter so as to fold under and surround the median rib of the tread-rim.

819,544. Friction Clutch. Albert Herri-son, Nimes, France. Filed Nov. 22, 1904. Serial No. 233,861.

Claim.—1. In a friction clutch, a cup-

shaped member having a portion of its circumferential wall expandible and the other portion extending from and to said expandible portion rigid, thereby causing the movable part of the clutch to press unequally on the walls of the said cup-member and to progress more readily when the points of maximum pressure are in and against the expandible portion of the cup-shaped member, thus determining a considerable increase of pressure when they reach the undeformable part of the cup-shaped member, substantially as hereinbefore described.

819,557. Internal Combustion Engine. John B. King, Plymouth, England. Filed April 26, 1905. Serial No. 257,457.

Claim.—1. The improved internal combustion engine, comprising in combination an annular casting an odd number of cylinders having their axes in one plane and radially disposed in said casting with spaces for water circulation between the same, a crank-shaft, a disk formed in two parallel halves and connected to said crank-shaft, pistons in said cylinders, connecting-rods for said pistons, pins on said disk to which said connecting-rods are pivoted, means for guiding said said disk to prevent its rotation on its own center, a centrally-disposed half-time shaft, gearing connecting said half-time shaft with the crank-shaft, a commutator on said half-time shaft, commutator-segments disposed so as to effect ignition successively in alternate cylinders, and valves for said cylinders actuated from said half-time shaft.

819,618. Apparatus for Recording the Movements of Vehicles. Benjamin F. Teal, Glenside, Pa. Filed Aug. 9, 1905. Serial No. 273,390.

Claim.—1. In an apparatus for recording the movements of vehicles, a record-surface holder, means for constantly moving said holder at a predetermined speed, a marker, and a lever adapted to cause said marker to approach the contact area, said marker having motion toward the contact area after said lever has ceased to move, whereby the marker may be brought to the contact-point by a motion independent of the motion of the lever.

819,695. Speed-Changing Attachment for Tachometers. Anthony Fricker, Pittsburg, Pa. Filed Oct. 23, 1905. Serial No. 284,085.

Claim.—1. The combination in a tachometer, of a reversible attachment comprising a casing, beveled gears mounted in said casing, one gear being attached to the casing and the other free to revolve therein, independent shafts projecting from opposite ends of the casing, a rotating and revolving beveled gear-wheel engaging said first-named gears, substantially as described.

819,377. Driving Mechanism for Automobiles. William C. Price, Chicago, Ill., assignor to Staver Carriage Company, Chicago, Ill., a corporation of Illinois. Filed July 8, 1905. Serial No. 268,880.

Claim.—1. In a self-propelled vehicle, the combination with a frame, slide-boxes mounted on said frame, springs secured to said slide-boxes, an axle secured to said springs, driving-wheels mounted upon said axle, and driving-pulleys rigidly connected with said driving wheels, of a driving-shaft, driving-pulleys secured to said driving-shaft, driving-belts connecting the driving-pulleys on said driving-shaft with the driving-pulleys on said driving wheels, friction-pulleys secured to said driving-shaft in alinement with said wheels, a lever mounted on said frame, and connections between said lever and said slide-boxes and axle, whereby when said lever is moved in one

direction the said driving-belts will be tightened and when said lever is moved in the other direction said driving-belts will be slackened and said driving-wheels moved into frictional engagement with said friction-pulleys.

819,386. Shock Absorber. Harry C. Turner, Los Angeles, Cal. Filed Aug. 31, 1905. Serial No. 276,629.

Claim.—1. A shock-absorber comprising inner and outer hub members, a clutch, means for tightening the clutch, a ratchet-casing, a spring connecting the ratchet-casing with the inner hub and a flexible connection connected at one end to the ratchet-casing, the absorber adapted to be secured to one portion of a vehicle and the outer end of the flexible connection to another whereby to absorb the shock caused by one in the other.

819,825. Lifting Jack. Nicholas Weiler, Sioux City, Iowa. Filed Sept. 9, 1905. Serial No. 277,664.

Claim.—The combination with a hollow frame, and a vertical, movable toothed bar in said frame, of a hand-lever having a cogged sector fulcrumed to the frame, a segment of gear having cogs adapted to mesh therewith fulcrumed to the frame underneath the hand-lever, a pawl-bearing rock-lever fulcrumed to the frame and guided by said gear, pawls one above the other fulcrumed to said rock-lever and adapted to engage the teeth of said bar, whereby when the hand-lever is operated and a reciprocating motion imparted to said gear the pawls alternately engage said bar, and means for holding said pawls in engagement, substantially as described.

891,890. Friction-Clutch. Thomas J. Kehoe, Fort Wayne, Ind. Filed Nov. 9, 1904. Serial No. 231,980.

Claim.—1. In a friction-clutch, a driving member having an internal friction-face; a hub in axial alinement with the driving member; a spring-frame consisting of outer and inner curved webs, the ends of the latter being united with the corresponding ends of the former, and with its inner ends fixed to the hub, and the outer web being adapted to frictionally engage the driving member; and means in connection with the hub acting oppositely against the respective ends of the webs to expand the frame.

819,942. Wheel. William S. H. Smith, Croydon, England. Filed Nov. 2, 1905. Serial No. 285,645.

Claim.—1. The combination of an axle, two plates on it, the inner surface of each plate consisting of an annular groove surrounded by a plane surface, a nave free to

move between the plane surfaces and a pneumatic tube of more or less oval section with its major axis parallel to the axle and wider than the nave in the space inclosed by the axle, the nave and the grooved part of the plates.

819,990. Explosion Turbine. Fritz H. Grawert-Zellin, New York, N. Y. Filed Nov. 19, 1904. Serial No. 233,398.

Claim.—1. In a machine of the character described, the combination of an annular cylinder of substantially circular cross-section, rotary pistons in said cylinder, a main driving-shaft and a circular disk mounted thereon and supporting said pistons inlet and exhaust openings in the wall of said cylinder for the explosive power medium and the exhaust-gases oppositely hinged and co-operating traps forming an explosion chamber in conjunction with said pistons, lateral projections at the hinges of said traps, rings mounted upon the main driving shaft having circular grooves engaging said lateral projections when the traps are in closed position and cam projections so as to open said traps shortly prior to the passage of the pistons and sparking devices within said cylinder for igniting the explosive mixture, substantially as described.

820,008. Vehicle Seat. Donald G. McDiarmid, Chicago, Ill. Filed Sept. 23, 1905. Serial No. 279,809.

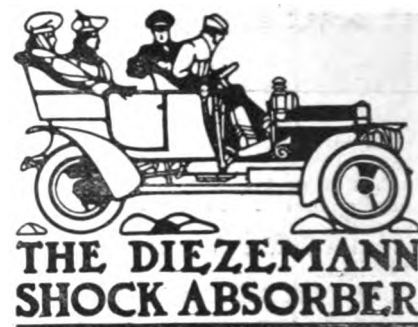
Claim.—1. In a device of the character described, the combination of a vertical pivot-stud adapted to be secured to a vehicle, an arm pivoted on said stud and adapted to swing in horizontal plane, and a seat hinged to said arm adapted to be swung horizontally on said pivot-stud and turned into a vertical plane by means of said hinges, substantially as described.

820,010. Gasolene Motor. Ludwig Pettersen, Chicago, Ill. Filed June 6, 1904. Serial No. 211,233.

Claim.—1. The combination of companion simultaneously-exploding cylinders, each having an explosion-chamber at one side of the piston and an air-compression chamber at the other side thereof, an explosion-chamber of each cylinder being connected by a valved passage to the air-compression chamber of the other cylinder.

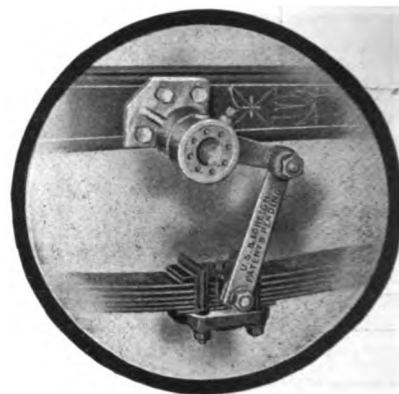
820,040. Battery Plate. Owen H. Fay, Chicago, Ill. Filed Aug. 19, 1904. Serial No. 221,384.

Claim.—1. A battery plate comprising end bars, a series of longitudinal bars provided with a series of rearwardly-flaring grooves, and a series of strips extending across the opposite faces of the plate, and in staggered relation to each other.



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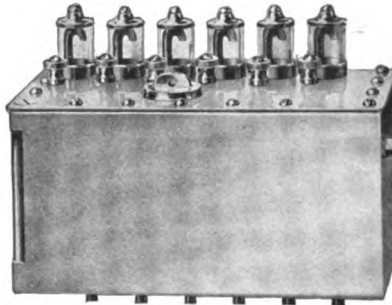
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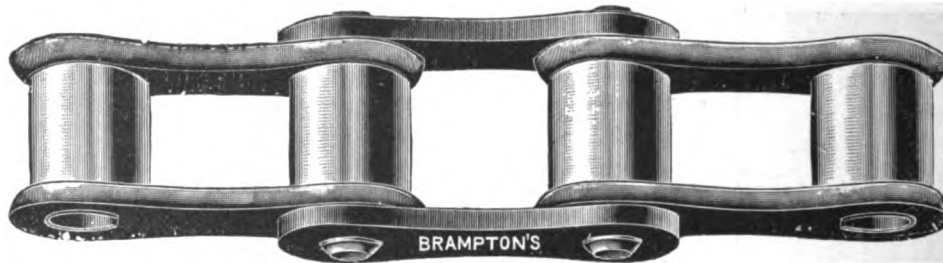
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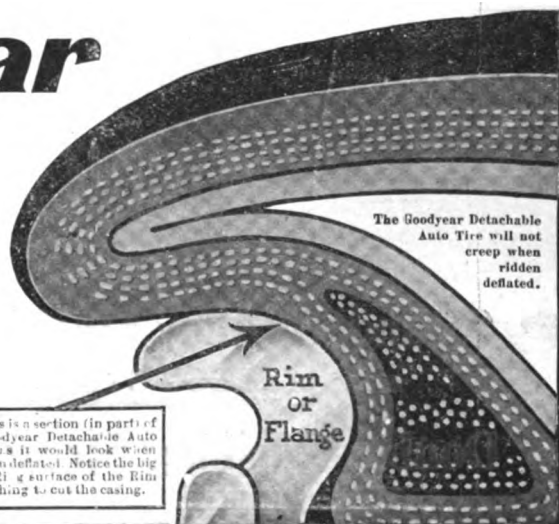
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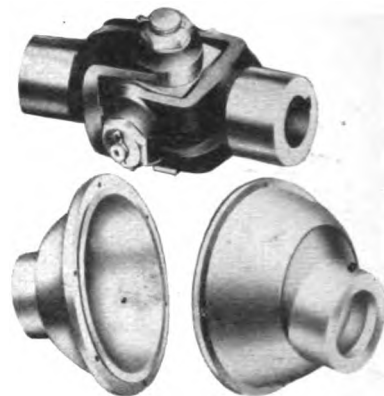
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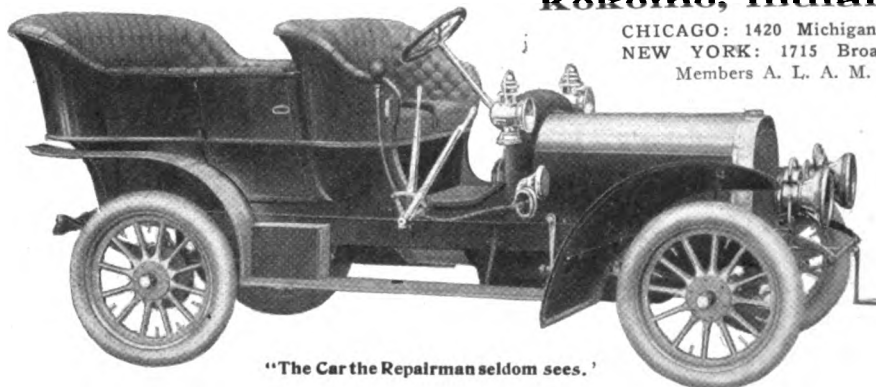
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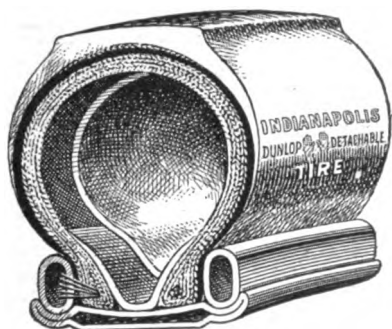
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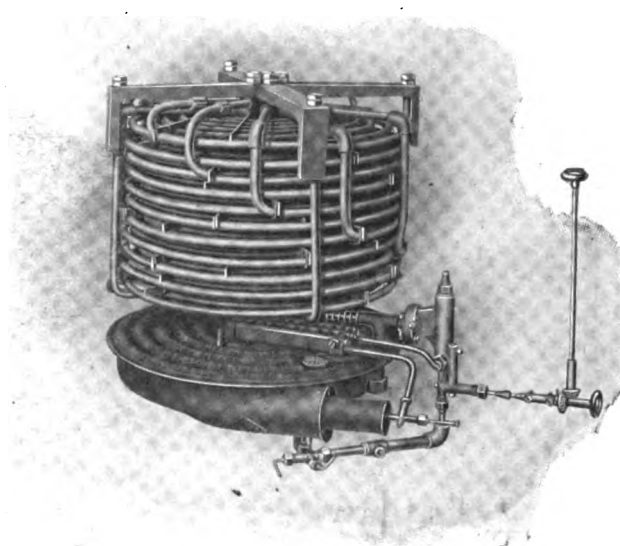
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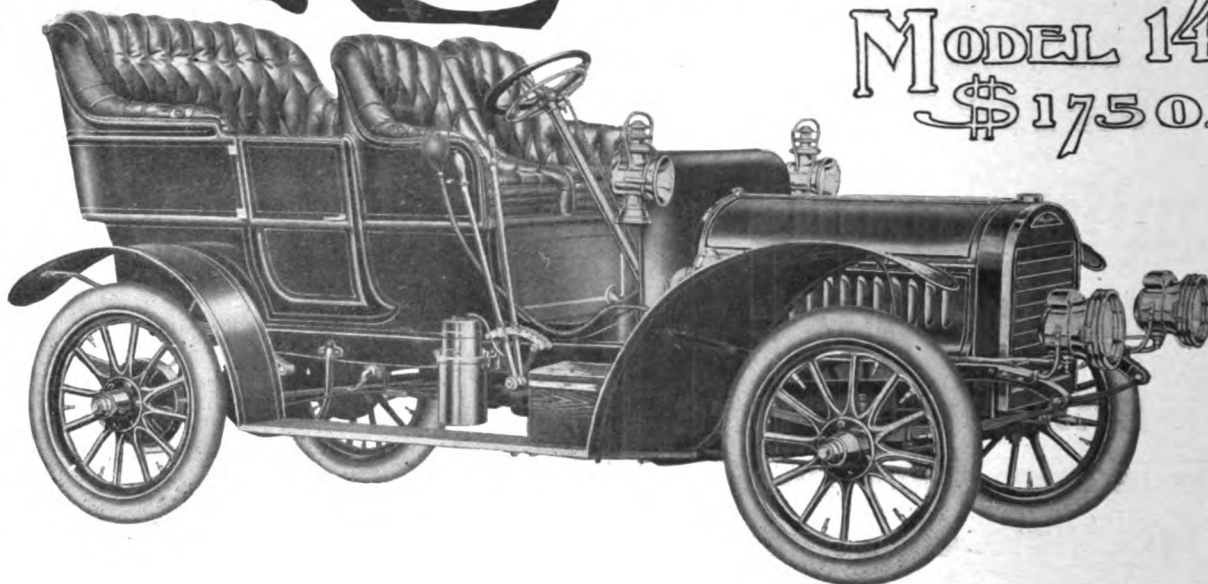
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Volume XII.

New York, U. S. A., Thursday, May 24, 1906.

No. 17

EPHRAIM COMES TO NEW YORK

Picturesque Addition to Local Trade Colony—His Monte Carlo Reminiscences.

Lee Ephraim is here—here in New York City. Just when he arrived is not generally known but at any rate he has been installed as manager for the United Automobile Co., which will deal in second-hand cars.

Who constitute the United does not appear, but who constitutes Lee Ephraim is well known. He was a member of the Buffalo firm of Ephraim Bros., dear to the memory of many creditors. The brothers made a picturesque failure and under the proddings of the creditors, Lee told the court an equally picturesque story. He had borrowed a wad of money from a Virginia caterer, given notes for it and then taken a little journey to Monte Carlo where he "bucked the tiger" unsuccessfully—this, at least, was the burden of his tale. He was a little hazy about the exact location of Monte Carlo and about the particular "tiger" whose tail he endeavored to twist, but at any rate he came back to America with the remnants of his wad, sought out the Virginian and took up his notes, which he tore to bits and threw out of the window of a mile-a-minute train. The fast flying Virginian then promptly shut up shop, took a steamer for Europe and actually did not say when he would return nor did he leave any address where he could be reached. Lee Ephraim swore to all this so it must have been the ephramistic truth.

The Ephraims's creditors were very ugly for a while and made things so unpleasant that there were stories afloat that a good friend of the Ephraims on Cortlandt street, New York, was nervously fingering a check book preparatory to settling. But about that time the creditors accepted a compromise and the check book was stowed away. Lee Ephraim was lost sight of, but his brother Henry, who had not been to Monte Carlo, turned up in the automobile business in San Francisco. Last month, the earthquake and the fire that wrecked that city, smote Henry hard. His establishment and its contents went up in smoke—that is, all save the insurance policy, which, curiously

enough, is said to have been safely stored in a safe on Cortlandt street, New York, which is so strong that its holdings cannot be singed, even if fire should visit the place.

As few of the men in the New York trade have bucked the Monte Carlo tiger or borrowed money from Virginia caterers, it goes without saying that the presence "in their midst" of Lee Ephraim, who, as he himself has said, has done those very things, will cause him to become an object of no little interest.

Enter the Toledo DeLuxe.

The new company which has been organized chiefly by F. M. Keaton, formerly connected with the Pope-Toledo factory, will be styled the De Luxe Motor Car Co. It will begin operations in the plant in Toledo, Ohio, in which the Yale car formerly was made, which has been leased for the purpose. Two models, termed the "Toledo De Luxe" and listing at \$4,000, will be produced; one will be distinguished by shaft drive, the other by outside double chain transmission.

Poole to Represent Aerocar Abroad.

While he and his associates in the Aerocar Co. have been with aggressive industry planting the Aerocar standard in this country, Alex Y. Malcolmson has not overlooked the foreign field. The proof: John L. Poole, for many years the foreign representative of the Olds Motor Works, has been "acquired" by the Aerocar Co., whom he will serve in a similar capacity.

Collapse of Non-puncturable Tire.

E. O. Hogan has been appointed receiver for the Tennant Auto Tire Co., of Springfield, Ohio, on application of Ira W. Wallace. The liabilities of the concern amount to about \$9,000. The Tennant tire was one of the large family of non-puncturables.

Increase in Price Possible.

It is reported that one of the big manufacturers is making ready to announce a considerable advance in the price of his touring cars. The increase, it is said, will be either \$500 or \$1,000, with the chances favoring the latter figure.

OUT OF TRANSPORTATION

Electric Vehicle Co. Sells Holdings in Allied Concern—Value Exceeds a Million.

The Electric Vehicle Co. is no longer interested in the New York Transportation Co.—the company which operates all of the electric cabs and similar vehicles in New York. The E. V. Co. has disposed of all of its holdings to the Metropolitan Securities Company, or to interests identified with that company, according to reports circulated in Wall street this week. A large stockholder of the New York Transportation Company is authority for this statement.

The Electric Vehicle Company held about 72,000 shares of the par value of \$1,140,000 out of the \$4,700,000 capital of the New York Transportation Company. This stock was acquired by the Electric Vehicle Company at the formation of the transportation company, which operates electric vehicles under license granted by the E. V. Co. If this stock has been acquired by the Metropolitan Company itself, no report of the transaction has appeared in any of the statements issued on behalf of that company.

It has been rumored at different times that the Electric Vehicle Company had negotiated the sale of its holdings of New York Transportation Company stock, but no official confirmation of the rumor has ever been had. The statement concerning the matter was that the sale actually had been completed months ago.

The New York Transportation Company, which operates about 700 electric vehicles in New York City and Newport, also owns the entire capital stock of the Fifth Avenue Coach Company and of the Metropolitan Express Company. The latter was leased in 1904 to the American Express Company for sixteen years.

May be a Popular Priced Aerocar.

Reports are current that the Aerocar Co., Detroit, Mich., have "in the works" a small, light four-cylinder car which is to be marketed at a popular price. The reports, however, are not possible of confirmation at this time.

In the Retail World.

T. J. Butler has opened the first automobile garage in Harrison, N. J. It is located in Harrison avenue, near Fifth street.

Fifield Bros., Augusta, Maine, will erect a garage just north of the Purinton coal sheds, that city. The building will be one story in height and measure 40x50 feet.

Fred A. Clark has acquired the property at Main and Ninth streets, Zanesville, Ohio, where he will establish a garage. The building will have 6,400 square feet of floor space and will be thoroughly equipped.

W. L. Nichols has leased the projected automobile warehouse that Edmund C. Coffin will build at 244-250 West Forty-ninth street, New York City. The building, which will cover a plot 80x82 feet, will be eight stories high and will cost, approximately, \$200,000.

An attractive and commodious garage is to be erected at once for Hill & Holt, 372 Somerville avenue, Somerville, Mass. It will be located in the vicinity of Central Hill. The building will be one-story in front and two rear, and have accommodations for about 100 cars.

The Rockford Engineering Co. is the name of a new concern that has been formed at Rockford, Ill., by Eugene Hart and Walter B. Taylor, to conduct a garage. The company has leased an old carriage shop on South Main street which will be remodeled. T. E. Hart, a Chicago automobile mechanic, will manage the garage.

Following the removal of the Chicago agency of the Fisk Rubber Co., last week, to 1440 Michigan avenue, their former quarters on the ground floor of No. 1251 will be occupied by the Hamilton Automobile Co., now doing business on the second floor. The Michelin Tire Agency will replace the Hamilton Co. on the second floor.

Henry P. Thompson, of Savannah, Ga., who has occupied a minor role in local automobile affairs, has embarked in business for himself. The new firm will be styled Thompson & Co., the latter representing C. W. Gasque. The firm has taken the agency for the White, Maxwell-Briscoe and Reo cars and in addition to repairing, will conduct a livery department.

Plans have been filed for a six-story brick garage to be built for James E. Kennedy, as lessee, for 21 years, on a plot in Central Park West, north of 100th street, New York City. It is to be 25.3 feet front and 97 feet deep with a facade of iron and glass, and will cost \$25,000.

Place Finds Maine Money Shy.

C. Wilson Place is experiencing difficulty in locating the "mammoth automobile factory" which some unnamed Boston capitalists are endeavoring to establish in Maine. Saco was the first place that was "felt," but the capitalists of that place did not like the proposition. Then C. W. Place, who is

acting as the intermediary for the Boston promoters, went to Biddeford and presented his proposition to the local Board of Trade. The scheme was for the citizens of Biddeford to subscribe \$100,000 worth of stock in the proposed company, the Boston promoters agreeing to furnish \$50,000. The mysterious company's representative stated that the company would employ 250 skilled mechanics, and that it would build a four cylinder, 15 horsepower convertible run-about-delivery wagon, weighing about 800 pounds and selling at from \$500 to \$700. The Biddeford Board of Trade appointed a committee to sound the citizens and their efforts met with discouragement, the moneyed men apparently not being inclined to give up.

Calcutta Show Offers Opportunities.

Calcutta is to have an exhibition of automobiles, motorcycles, accessories and kindred lines, in January, 1907, and as there is a prime demand for goods of this description, the hint is a timely one to those who are on the alert for new outlets. At the time of the year in question, India's chief city is filled with visitors, not alone from the surrounding country for many hundreds of miles, but from all parts of the world. The affair will be held under the auspices of the Automobile Association of Bengal, the headquarters of which are at 57 Park street, Calcutta.

New Deal in Saginaw.

The Jackson, Church, Wilcox Company, which was incorporated in Saginaw, Mich., last week, with \$25,000 capital, will take over the business of the Jackson & Church Co. and manufacture machinery and automobile delivery wagons. The company will start in a modest manner, employing about 30 mechanics. John L. Jackson has been chosen president, M. L. Wilcox, vice-president and general manager, and E. D. Church, secretary-treasurer.

Des Moines Compound Changes Hands.

The Motor Components Co., of Des Moines, Iowa, has purchased the entire business and plant of the Hopkins Bros.-Springer Co., Des Moines, who manufacture a brazing compound under the trade name of "Brazol," and has moved the plant to its factory at 119-121 East Walnut street. The Motor Components Co. will make the compound in connection with its other automobile specialties.

For Quick Inflation of Tires.

The Prest-O-Lite Co., of Indianapolis, Ind., have placed on the market a new tank containing enough liquid gas to fill forty tires with eighty pounds pressure, the pressure being automatically regulated to this figure. In operation it does not differ from the regular Prest-O-Lite illuminating tank and may be stored in a locker. It is not, however, designed to be carried on the car.

The Week's Incorporations.

Chester, Pa.—Chester Automobile Co., under Pennsylvania laws, with \$15,000 capital; to deal in automobiles. Corporators not named.

Brooklyn, N. Y.—Burns Auto Co., under New York laws, with \$5,000 capital; to deal in automobiles. Corporators—D. H. A. Burns, A. R. Burns and Fred Burns.

New York City, N. Y.—Auto Tally-ho Co., under New York laws, with \$16,000 capital. Corporators—O. Schueler, E. F. Flammer and L. Noyes, all of New York City.

Chicago, Ill.—Trout Auto Livery Co., under Illinois laws, with \$2,500 capital; to deal in automobiles. Corporators—David Trout, Warren M. Trout and Bion M. Trout.

Cleveland, O.—Empire Garage Co., under Ohio laws, with \$10,000 capital; to deal in automobiles. Corporators—R. H. Paton, M. E. Sterre, Joseph C. Sparrow, John D. Paton and Herbert A. Steere.

Milwaukee, Wis.—A. D. Meiselbach Motor Co., under Wisconsin laws, with \$200,000 capital; to make motor delivery wagons. Corporators—A. D. Meiselbach, E. R. Godfrey and Charles A. Rohde.

New York City, N. Y.—Atlantic Motor Co., under New York laws, with \$25,000 capital; to deal in automobiles. Corporators—J. J. Desmond, New York City; R. F. Newton and L. P. Newton, Newark, N. J.

Salt Lake City, Utah.—Salt Lake Automobile Co., under Utah laws, with \$10,000 capital; to deal in automobiles. Corporators—W. O. Duvall, president; Estella Duvall, vice-president; W. W. Rivers, secretary-treasurer.

New York City, N. Y.—Muller Porous Plate Accumulator Co., under New York laws, with \$5,000 capital; to manufacture electric storage batteries. Corporators—Frank Assmus, Mount Vernon; Albert Muller and J. F. Joyce, New York City.

Jersey City, N. J.—The New York Car & Truck Co., under New Jersey laws, with \$2,500,000 capital; to manufacture automobiles, railway passenger and freight cars. Corporators—J. R. Turner, H. S. Rossell and T. S. Strong, Jr., all of Jersey City.

Kittery, Maine.—Dragon Automobile Co., under Maine laws, with \$550,000 capital, \$300 paid in; to manufacture and deal in automobiles and equipment. Corporators—Harold P. Knowlton, Malden, Mass., president; Albert E. Knowlton, Boston, Mass., treasurer.

Laramie, Wyo.—Wyoming Central Railroad Co., under Wyoming laws, with \$200,000 capital; to operate automobile railway. Corporators—H. O. Barber, E. H. Fourt and Frank Thomas, of Lander; Joseph Shaw, W. H. Shinnick, and J. Hope Sutor, of Zanesville, Ohio.

SELDENS IN THE LIMELIGHT

**Father and Sons Appear in Ford Suit—
Original Car Shown in Operation.**

If, despite the long litigation in which his patent has been concerned, George B. Selden never had been on the witness stand until called in the pending case of the Electric Vehicle Co. vs. the Ford Motor Co., he cannot complain that he was not thoroughly quizzed when he did give his testimony; nor can his sons have any cause for complaint on that score. The sons had their "inning" on Saturday last and amid rather unusual surroundings.

under its own power. It was run across the basement several times and later was pushed by hand to the street where the photographers bombarded both the car and the Selden family.

The lawyers, with stenographers at their elbows, spent what seemed an interminable length of time in the basement catechising the Seldens, chiefly the sons. Most of the questioning was of dry technical order, but the Ford attorney gave cause for at least one hearty laugh.

"What is there in existence in this vehicle that was in existence in 1879?" he gravely asked of Selden, Jr., whose youthful appearance suggested his answer.

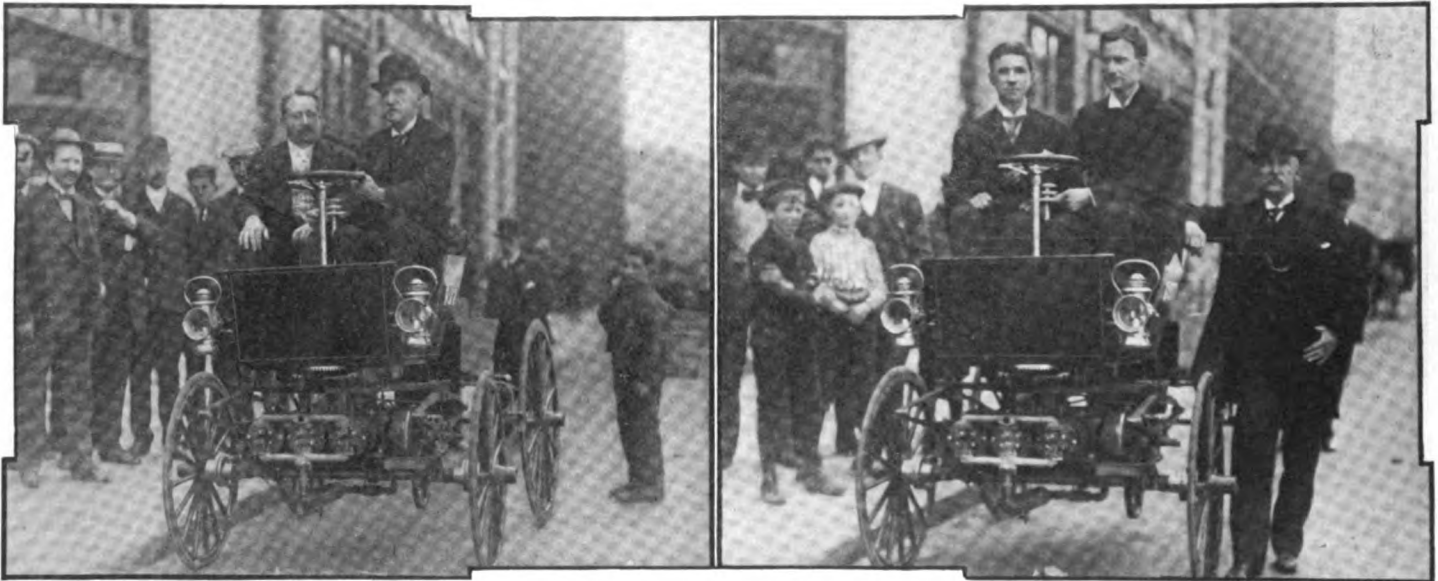
"As I was not in existence in 1879 I can-

GENERAL ELECTRIC'S BID WINS

Big Company Purchases Vehicle Equipment Property—Business will Continue.

On the ruins of the bankrupt Vehicle Equipment Co., late of Lang Island City, N. Y., there is about to arise a company which would seem of practically unassailable strength, since it will represent the powerful General Electric interests.

This was indicated by the purchase of the plant at the trustee's sale by M. C. Humstone, who, it is definitely known, acted as the representative of the General Electric Co. He paid \$235,000 for the property.



GEORGE B SELDEN AT THE WHEEL OF HIS ORIGINAL VEHICLE.

THE SELDENS, FATHER AND SONS.

Selden's original vehicle, on which he applied for a patent on May 8, 1879, had been brought to New York as evidence in the case. It had been stored in the Decauville garage on 56th street, and Saturday last was the day fixed when the charge set up by the Ford attorneys that the historic Selden car was an impracticable vehicle that would not run was put to the crucial test. Inventor Selden and his two sons, Henry and George B. Jr., were on hand to assist in the performance and also to answer the questions of the lawyers in the case, all of whom were present. Those representing the Ford Motor Company were R. A. Parker, counsel, and Prof. Carpenter, of Cornell, and Jesse Smith, experts. On the Electric Vehicle Company side were W. A. Redding and Samuel R. Betts, of counsel; ex-State Senator Raines, personal counsel for Mr. Selden, and S. F. Fisher, formerly assistant United States Commissioner of Patents.

They all congregated in the basement of the Decauville establishment and there the two younger Seldens established the fact that the now archaic three-cylinder, three horse, three hundred pound vehicle built by their father really could be operated

not truthfully answer that question," the younger man smilingly replied. And then the basement resounded with laughter in which Attorney Parker himself joined.

Nichols and Norwalk Part Company.

J. C. Nichols and A. B. Norwalk, who have been trading as the General Automobile Supply Co., in New York, have dissolved partnership. Nichols will continue to operate under that title at the Broadway address and will also establish a down town branch at 11 Warren street, in the premises now occupied by the Badger Brass Mfg. Co., who are preparing to take possession of their Eastern plant in the David Williams Building. Norwalk will retain the Chambers street store and will incorporate his business as the "35-Percent Automobile Supply Co."

C. W. Hatch, formerly in the motorcycle department of the Consolidated Mfg. Co., Toledo, Ohio, has caught on with the Diamond Chain & Mfg. Co., of Indianapolis, Ind. He will cover the eastern territory, succeeding William Culver, who returns to his old stamping grounds, the Middle West.

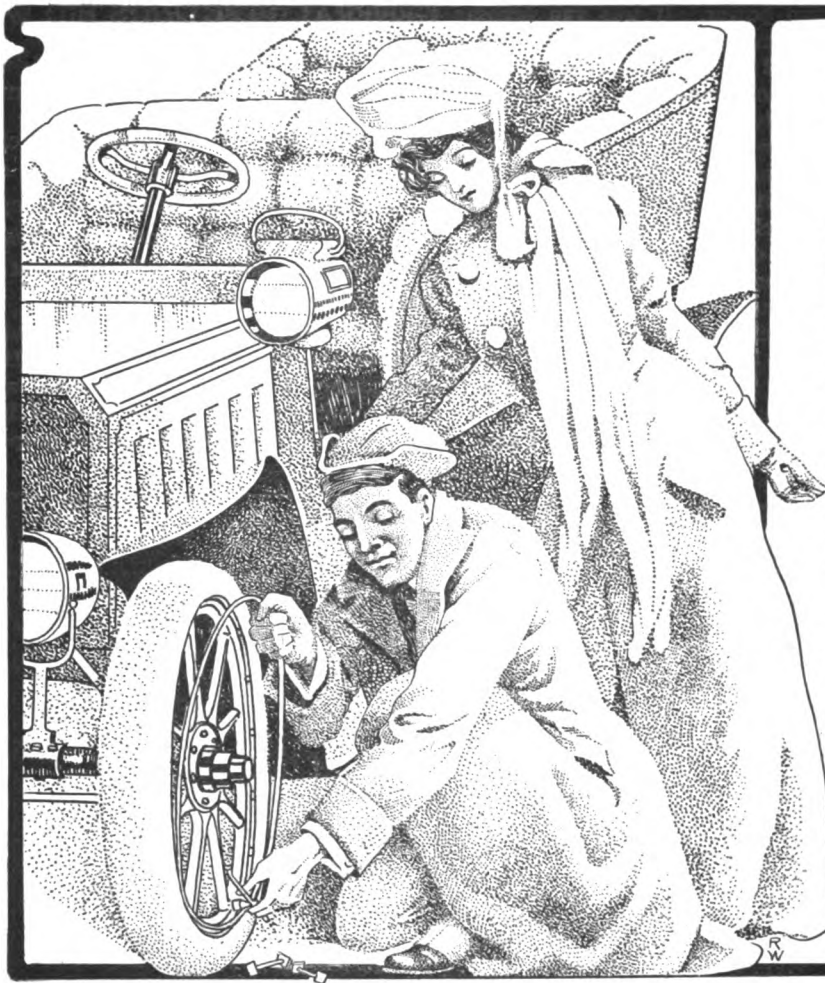
which is a much higher figure than had been expected would be obtained.

It is understood from an authoritative source that the General Electric interests will reorganize the plant and continue the production of the same types of electric commercial vehicles made by the defunct Vehicle Equipment Co.

White to Build in Cleveland.

A six-story garage, to cost between \$75,000 and \$100,000, will be erected on the plot of ground in Rockwell avenue, N. E., between East Sixth and East Ninth streets, Cleveland, Ohio, which has just been purchased by the White Sewing Machine Co. for \$26,000. The building will be of brick, stone and steel construction and will, of course, be fireproof. The White Company will abandon its present building on Rockwell avenue as the property has been sold to the city for a group plan.

The National Tire Protector Co., of which Charles F. Bareson is the head, will move to Peoria, Ill. The company has, in a small way, been making a tire-filling compound at Chicago.



Fisk Tires are Remarkable

for the Simplicity and Ease with which they can be repaired, for their Positively Safe Rim Attachment, their Comfort, and their Long Service Qualities.

¶ Fisks cannot roll on the rim. It is so firmly secured that there is absolutely no chance for it to creep—as other tires do. Its inner tube cannot get pinched. All the air in a Fisk is entirely above the rim, making the one perfect wheel cushion.

¶ They are now recognized everywhere as The Standard for Sterling Excellence of Design, Material and Construction.

¶ We would like to send you an article on the subject of different tire constructions.

THE FISK RUBBER COMPANY,
Chicopee, Falls, Mass.

FROM THREE OF THE MORE THAN 10,000 SATISFIED CADILLAC Owners

CADILLAC AUTOMOBILE CO., Detroit, Mich.

Gentlemen—Last spring I purchased from the Mar-Del Mobile Company, your representatives in Baltimore, a "Model E" single cylinder Cadillac, and it has given me such faithful and excellent service that I feel a word of recommendation is owing to you.

The roads in this section of the country are very rough and hilly, but my "dear little Cadillac" has always without fail taken me where I wanted to go, and brought me back home again.

I have used it for every purpose that I formerly used a horse and buggy, and the difference in cost of operation and maintenance of my machine, is less than half of what my team cost me. I have had my machine to stop for me only three times while in use covering nearly two thousand miles, and this was caused by my spark plugs fouling, which upon being cleaned, remedied all the trouble.

I can truthfully say and recommend after my experience with the "Model E" Cadillac that it is the best machine of its build and price that is made.

Yours very truly,

(Signed) HARRY B. HOFFACKER.
Baltimore, Jan. Twentieth, 1906.

MARDEL MOBILE CO., City.

Gentlemen—About eight months ago I purchased a single cylinder Cadillac automobile, and am glad to say that I have had absolutely none of the difficulties about which machines are ridiculed so extensively. During the above mentioned period, my motor has never once gotten out of order. Occasionally such parts as the spark coil and carburetter need adjusting, which you know is quite trivial. To sum the matter up, I am so well pleased with the Cadillac that I have concluded when I make a change and purchase a larger machine, I will not consider any other make. Wishing you and the manufacturers of the above mentioned motor much success, I remain,

Yours truly,

(Signed) D. F. HECHINGER.
Cumberland, Md., January 1, 1906.

CADILLAC MOTOR CAR CO., Detroit, Michigan.

Gentlemen—I feel it is my duty and due to you, that I express myself concerning my experience with the Cadillac automobile.

I have operated a model "B" single cylinder nearly eighteen months and during that time have put my car to the severest tests imaginable, and it has never failed to give a good account of itself and to assist in sustaining the well-earned and universal enviable reputation of this make of car, and should I get another car, it would most certainly be of the same make.

The operation of the car is simple and economical, and an operating knowledge of the car can be easily and quickly acquired by anyone having any turn whatsoever toward mechanics. I have made three trips from Baltimore to Cumberland over the National Pike in Cadillacs, and each trip was made in record-breaking time. I have operated quite a good deal, good cars of other makes, both chain and shaft drive, which has not influenced me to change my mind as to the superiority of the Cadillac. I consider the Cadillac product the best proposition on the market at anything near the same price. I can conscientiously assert that the car will take you any place any high priced car will, and with a good deal less trouble than many of them.

Yours truly,

(Signed) A. E. GLISAN.

SINGLE CYLINDER CADILLACS.

RUNABOUT, \$750.00

LIGHT TOURING CAR, \$950.00

F. O. B. DETROIT.

CADILLAC MOTOR CAR COMPANY, - Detroit, Mich.

Member Association of Licensed Automobile Manufacturers



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NEW YORK, MAY 24, 1906

About Accessibility.

Accessibility is a subject that has been harped upon by the motoring press and motorists generally to such an extent that it is not difficult to call to mind a number of instances in which the necessity of being a prize contortionist is no longer necessary when repairs are in question. Nor does the call to burrow in the dust or mud and gaze upward come so frequently, if at all. Whether the designers who have achieved this long-sought object have done so only as the result of bearing in mind their own experiences on the road in vainly trying to tighten a screw or nut, cannot be said, but it would seem most likely, for no one who has not bent and twisted himself into positions that the human anatomy was never intended to take in the attempt to make some adjustment, can appreciate the effort he would make to avoid such a mistake in future if he had the designing of that car.

There is, of course, a certain class of motorist and particularly, chauffeur, who could really show the man who designed and built the car how it should have been

done—if he had his say, but as individuals of this ilk have little or nothing to say through fear of exposing their ignorance and incompetence when confronted with an experienced hand, they may well be left out of consideration. But after eliminating these as well as that other and far more numerous class who raise their voices in complaint on the slightest provocation, it must be admitted that there are many cars which fall far short of what may be termed the acme of accessibility. This is asking a great deal, to be sure, but there are so many that do not even make an approach to it that the motorist who takes all things into account before condemning a design, is justified in putting them down as faulty.

One possible explanation of the many "ungettable" parts on such cars, and it is a very plausible one as well, is to be found in the fact that the designer has kept the chassis in his mind's eye at all times in working out the various locations of the different parts of the car's mechanism. The body is something with which he has nothing whatever to do; the frame dimensions are given to the bodymaker and he does the rest, this being the case particularly where the chassis is supplied by one firm and the body by another. Given the chassis alone and nothing could be simpler to reach any part of the mechanism with the proper tool to adjust it, and it will be recalled with what persistent frequency the show salesmen demonstrate this point on the polished exhibition piece over which they labor. The interested listener is delighted and if he happen to have had previous experience in barking his knuckles and shattering his temper in squirming into positions to tighten a nut in place, this may be the deciding argument that brings his order.

But leaning over a spick and span chassis that is mounted at exactly the right height to make it more convenient and is moreover absolutely devoid of every impediment such as running boards, guards and the like, not to speak of the body, and doing the same thing on the road when all these are in place, is a far different matter. Accessibility is naturally a variable quantity and may mean totally different things to different designers, but when it means taking off the body in order to reach a part that is at all prone to go wrong on the road, it will be considered a poor brand of article at best, by the average motorist. Nor do the majority of home garages boast the convenience of either a pit or a tackle with which to remove the body. In short, anything less

than a serious mishap must be capable of repair either on the road or in the average garage without the necessity of reducing the car to its chassis in order to reach the affected part, and until this has been attained the designer can scarcely be said to have achieved more than a fraction of what is represented by the word accessibility.

The Matter of Sliding Gears.

It is a source of never-failing wonderment to the uninitiated that the designers of the motor car should have settled down by common consent upon a form of variable speed transmission in which the various combinations are effected by so unmechanical an arrangement as the end-to-end clashing of spur gearing. That it is so, however, by no means brands the designers as imbeciles, nor does it prove that the point of absolute finality has been reached, by any means. It simply goes to signify that for the present, the sliding pinion type of change gear seems to satisfy the rigorous demands of the motor car transmission in a way which can be done by no other arrangement. It is the result of a number of years of study, and a process of evolution by the rule o' thumb, which has largely eliminated other methods proposed and at one time or another given a more or less thorough trial.

Were its advantages to be discussed, probably their strongest claims would hinge about the fact that once in gear, the control of the car is placed in the manipulation of a single master clutch, which, being common to all speeds, and being so placed that ample space can be given for its ample proportionment, little excuse can be given for its failure to act promptly and well under all circumstances. Also, its actuation by a simple movement unvarying throughout the speed range of the car, argues strongly in its favor. The gears themselves, once in mesh, are positive in action, strong in service, and reasonably efficient. On the other hand, it may be said that the method of change is a disgrace to the motor car builder's art; that it tends to shorten the life of the transmission through careless handling, and that by misuse it may become not simply offensive to the esthetic ear, but a menace to the mechanism of the machine as a whole.

After the early forms of belt drive, and with the inspiration of the spur gear transmission, came the notion of the individual clutch. In one form or another, it has seen

considerable use, more largely in this country than abroad, and still is to be found in one or two isolated cases on machines, which in other respects are excellent enough to call for careful consideration from the standpoint of the designer. In the closely banked gear set, as contained within the driven or driving gears, it was used successfully by at least one maker for several years. Others took it up in more expanded form, sometimes in conjunction with an arrangement for sliding the idle members out of mesh laterally. But all the time the sliding type of transmission was growing in favor, partly by virtue of its inherent qualities, once its operation was understood, and partly, be it said with shame, because it was "Frenchy."

At all events, it finally came about that the individual clutch was practically ousted from the field of American design, at least as such. But behold a curious anomaly. For the planetary type, American of the Americans, refusing to be downed by custom or fad, and constantly growing in favor because of its compactness, cheapness and general effectiveness, is nothing more nor less than an individual clutch transmission in a negative form. That is to say, where in the orthodox individual type, the application of the clutches serves to set the driving train in motion, in the planetary, the parts rotate in idleness until the clutch bands are applied, when the retardation of the outer element furnishes the reaction necessary to effect the desired transmission. The method is somewhat different, it is true, but the underlying principle is undeniably the same in both cases.

But stranger yet, from England, and even from France, the home of the sliding gear, comes news that individual designers are tackling the individual clutch there, even as it has been tackled here. Not that the all-popular type is losing ground, but rather that even the designers themselves are not fully satisfied with the type. Hence, from these, and from other indications, as well as from the present estimate placed on the value of the planetary type, it may safely be considered that the end of the individual clutch transmission has not come.

Of itself, it has many advantages. The disorder of one speed cannot ordinarily affect any of the others, its control need not be more complicated than that of the other type, its operation is simple in the extreme, mistakes are far less liable to happen, and its construction need not be expensive. Moreover, with the possibility of

an increase in the speed range of the motor, and the consequent diminution in the calls which are to be made upon the transmission, its practicability is constantly increasing. It is by no means out of the race, and it is worthy of a deal of careful consideration.

Brakes that may be too Powerful.

Increased power has brought with it a demand for increased stopping facilities and the car that can do a mile a minute or better must be able to stop in a correspondingly shorter space of time than one limited to a much lower speed. In other words, it is of paramount importance that the car be as well provided with brakes as it is with a motor, and one of the most noticeable developments that came to light at this year's opening show was the great amount of attention that had been devoted to this essential. And as is almost invariably the case where attention is concentrated on any one point some designers had gone to extremes and had provided means of stopping that were capable of bringing a fifty-ton locomotive to a sudden halt from high speed. This was particularly the case with the Americanized models of foreign cars that have recently appeared on this market. In one instance, the brake drum was 16 inches in diameter and had a 5-inch face, while in at least three others the dimensions were equally substantial though the cars were not above 45 horsepower.

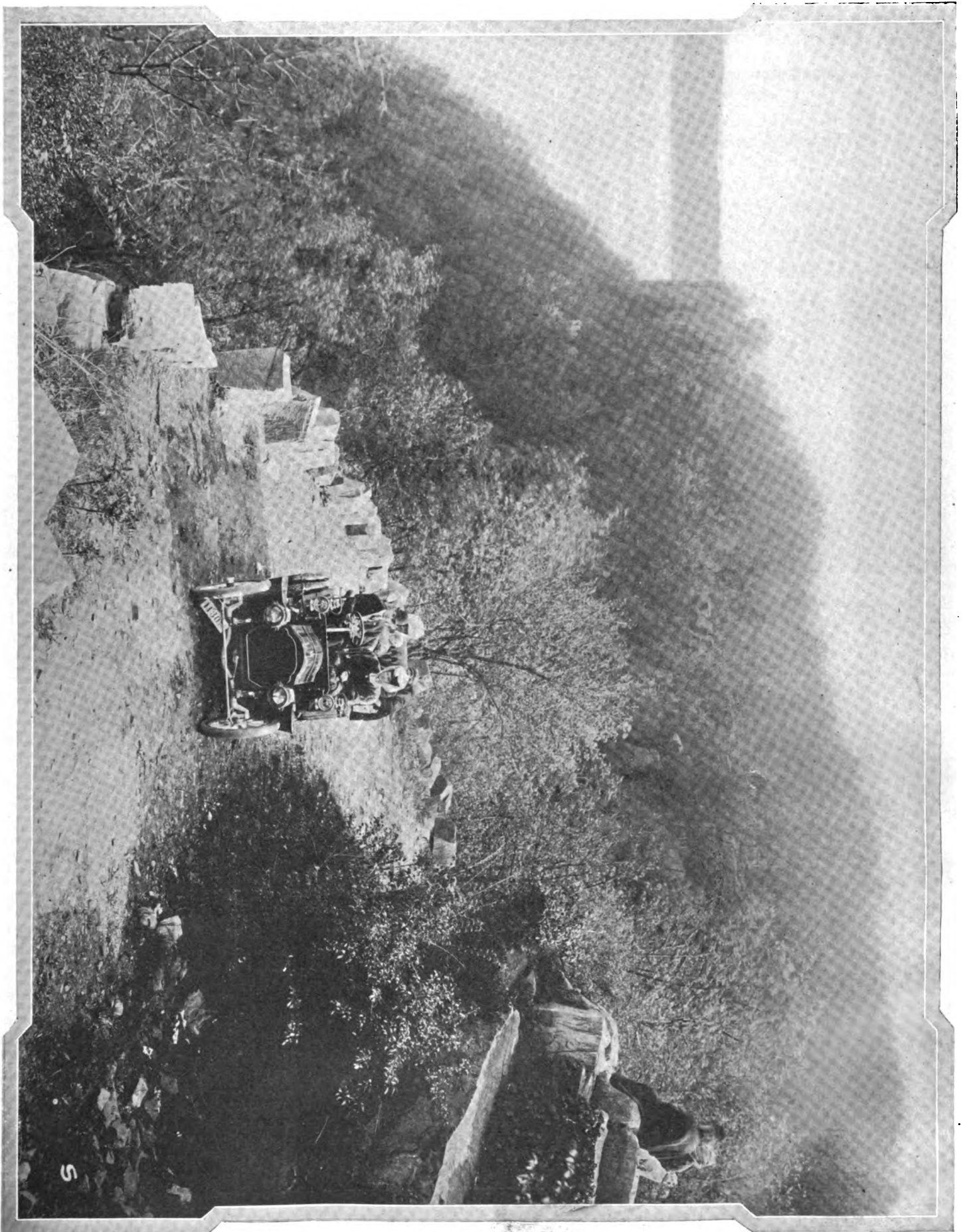
There is an element of danger in the presence of such a brake on a car for when the emergency arises it is likely to be applied so abruptly that disastrous results are apt to follow. Should it happen to bind one wheel slightly more than the other the tremendous momentum would in all probability cause the car to turn broadside on and capsize, turning one or more somersaults. In any case it would be likely to lock the wheels and ruin the rear tires, if no more serious damage resulted, and in this connection it is apparent that considerably more thought has been devoted to the matter of equalizing the braking effort on the rear wheels than has hitherto been the case. Just how many accidents a failure to take this into account has been responsible for in the past there can be no telling, but doubtless they were numerous for it is difficult to conceive of anything more conducive to slewing a car broadside on than the application of the brake to one wheel alone or to one more than another. Brake equalization and a tendency to concentrate

the brakes on the rear wheels mark somewhat of a departure on this year's cars. Current practice favors two sets besides the differential brake. One set is internal and expands against the drum and the other is external and operates on the outside face of it. Considerable attention has also been paid to the matter of providing interconnecting devices between the brakes and the motive power of the car, in one case the application of the brake throttling the motor beside disconnecting the clutch.

Regardless of how much thought and attention the builder has devoted to evolving the very best type of brake, it will be of little use in any emergency unless properly looked after. There are a number of motorists who would not think of permitting the adjustments of the engine to be overlooked before taking the car out, but who will persistently ignore the brakes simply because they play no part in running the car. There is so little actual need in the course of daily running for the emergency brake that it is usually neglected to a greater extent than the pedal brake which is more or less constantly used. The importance of including an inspection of the brakes in the daily going over of the mechanism cannot be minimized and connections, equalizer and the bolts and pins holding them together should be subjected to close scrutiny as well as the adjustment of the bands themselves. To few other things does the maxim "Eternal vigilance is the price of safety" apply with so much force as to the car that is capable of sixty miles an hour or better.

According to the Lucerne correspondent of the Paris Herald, the lot of the tourist in Switzerland will hereafter be much easier than heretofore, as many of the local abuses are to be abated and a more cordial welcome accorded the traveler, no matter what his mode of conveyance, than has been the custom in the land of cheese and watches. At a recent meeting under the Presidency of the Minister of the Interior, held at Berne, it was decided to look into the status of the motor tourist, and to provide for his better accommodation. Whence, it is to be inferred, that the thrifty ministry, realizing what emoluments might be obtained from such a course, have recommended that the open hand rather than the closed fist be extended to the chauffeur and his companions in the future. The almighty dollar of the visitor and the threatened loss of it often is of potent influence even in affairs of State.

ON THE PALISADES, OPPOSITE NEW YORK CITY.



SNARL OVER SMALL CARS

**Glidden Cup Committee Causes a Howl—
Another Revision in Prospect.**

At sixes and sevens apparently represents the predicament in which the special sub-committee of the American Automobile Association, appointed to draft rules for the Glidden Tour, finds itself. According to a press dispatch from Chicago early in the week, Secretary S. S. Gorham had made public the results of the sub-committee's labors, but painstaking search in New York failed to reveal anyone in authority who was aware that such was the case. Official information was to the effect that as the rules thus drafted must be submitted to the directors of the American Automobile Association for sanction before they could be adopted, no publicity would be given them until such action had been taken. However that may be, it became known that the proposed regulations contained a provision barring cars of less than 2,000 pounds weight—in other words, the runabout and light touring type, and there immediately arose a universal howl of protest from small car interests.

To make the elimination of the runabout absolute the rules further stipulate that not less than four passengers must be carried, and that the cars themselves must be fitted with touring bodies of the tonneau type. The cause of the ruling is manifest when it is taken into consideration the great difficulty that must attend the drafting of any equitable regulation that will cover the single cylinder runabout of less than 10 horsepower and the multicylinder touring car of 40 horsepower and over, as well as the many types that lie between these two extremes. This was strikingly demonstrated in last year's tour and as a result there has been a strong demand from large car interests that the rules should be so formed that the runabouts should not be permitted to compete on the same basis as the heavy cars to the detriment of the latter and it is apparent that the influence in question has made itself felt.

As there is no provision in the original deed of gift that discriminates so radically against the smaller cars, the makers of the latter have not been slow in showing their disapproval of the attempt to shut them out. Upon being consulted as to the validity of the rule in question, Paul Deming, chairman of the Touring Committee of the American Automobile Association, wired from Detroit, stating that the rules formulated by the special sub-committee would undergo radical changes before being finally adopted by the directors of the association. He further made it known definitely that the 2,000 pound rule would not be allowed to stand, which in consequence makes this a moot point until the rules as a whole are passed upon officially. In connection with the discussion that has arisen

over the proposed rule one motorist gave it as his opinion that the adoption of such a ruling would bar no less than 20 types of cars, while another bright individual suggested that a second trophy be offered for the small cars alone.

But even with the question of the basis upon which the small car is to be allowed to compete eliminated, the difficulties will not be entirely removed by any means. It is no easy task to assimilate the rating of a large number of cars of such widely varying capacity and horsepower into a concrete formula that will place all on an equal footing, and in recognition of this the committee has decided to apportion other honors where they may be due in the shape of eight special prizes. These will be given for hill climbing, brake tests, minimum tire trouble record, heaviest load carried, for the greatest distance covered and one to the club providing the greatest number of entrants while the eighth will be a booby prize for the car having the greatest amount of tire and mechanical trouble. Until the rules have been passed upon by the directors of the American Automobile Association, nothing definite regarding the route or conditions of the competition will be known and there has been considerable criticism on the part of makers regarding the dilatory methods pursued.

Free Alcohol Almost Assured.

There now is practically no doubt of the passage of the free alcohol bill. Yesterday it was favorably reported to the Senate from the Committee on Finance, and it is understood that the President has brought his influence to bear in its favor.

The Senate committee amended the bill by providing that it shall take effect on January 1 next, instead of three months after passage, and also provided more drastic penalties for evading the revenue taxes by illegally using denatured alcohol by providing for the forfeiture of the building and ground upon which the act is committed, in addition to the five years' imprisonment and \$5,000 fine stated in the House bill. The committee also provided that the process of denaturing the alcohol should take place in special bonded warehouses designated for that purpose only.

Princeton Students to Compete.

The Automobile Club of Princeton University will hold a hill-climbing contest at Princeton, N. J., to-morrow afternoon. Seven classes have been provided for. The course will be laid out on Washington road, with the start at Carbeie lake and the finish at '79 hall. The events are open to club members only.

St. Joseph Motorists Organize.

Automobile owners in St. Joseph, Mo., have effected organization as the St. Joseph Automobile Club, and the club will direct its efforts for better roads. The officers elected are: President, Huston Weyth; vice-president, Louis T. Golding; secretary, R. E. Culver; treasurer, Henry Krug, Jr.

OHIO LAW IS NOT DEAD

Is Merely Doubtful, says the Attorney General—Test Case Being Arranged.

Although it was generally reported that Attorney General Wade Ellis, of Ohio, had handed down an opinion that the automobile law passed by the last Ohio legislature is unconstitutional, such seems to be not the case.

"I have not stated, as reported," says the Attorney General, "that the new automobile law is unconstitutional. What I did say was that the auditor of the State had better test the law before proceeding under it."

In line with his idea the Attorney General will bring a suit before the Supreme Court of Ohio in the near future to test the constitutionality of the law. Attorney Cushing has been retained by the Automobile Club of Cleveland and the State Automobile Association. The automobile organizations will maintain that the law is unconstitutional in that it is not uniform in its operations; that it deprives municipalities of the power to regulate the use of their streets as to certain classes of vehicles, automobiles and traction cars, and that the provisions of the law are uncertain and indefinite. It is doubtful if the State's attorney will fight the case very hard as he is of the opinion that the law is totally unjust and although he does not say so in so many words, he believes that it is unconstitutional.

The Secretary of State will not enforce the new law until a decision is arrived at, but will continue to issue licenses under the old law in force previous to the passage of the Sawicke measure by the State Legislature on April 2, 1906.

Making use of Sponge Remnants.

"You can use the remnants of your sponges almost indefinitely, and in many cases to good advantage," says W. J. Edwards. "If you will buy a Turkish bath towel; or, better still, if you can get such goods by the yard, cut the same into pieces that when sewed on the two sides will be about 5x5 to 4x6 inches, and then well fill these bags with small pieces of sponge and sew up the remaining end, and the trick is done. When the bags show signs of wear you can easily slip another of the bags over and sew up the open end, and there you are—or you can put your pieces in a new bag.

"The idea or point is this: our sponge remnants are of themselves useless, but when confined in a bag they form a resilient and absorptive cushion, and are not subjected to wear other than comes from wringing or squeezing out the water. I have found these bag sponges to work admirably in cleaning woodwork—in fact they are really preferable to the ordinary sponge."

Brooklyn's Parade Proves a Free-for-All Scramble.



BEFORE THE SCORCH BEGAN.

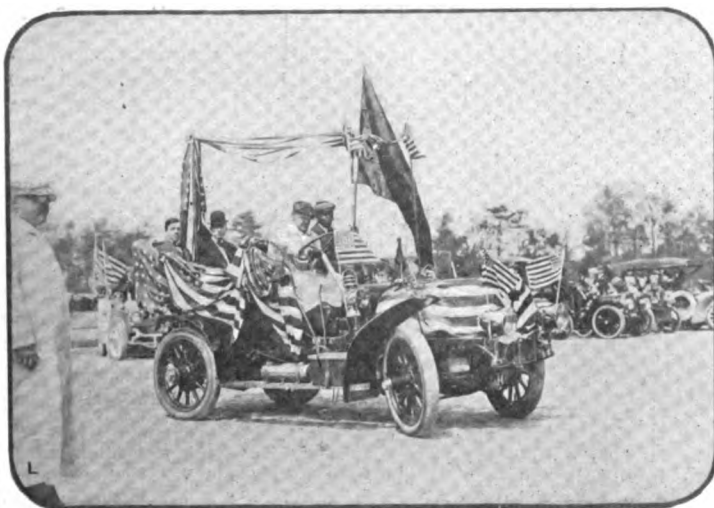
With one hundred and thirty cars in line, a few of them decorated, the Long Island Automobile Club held its annual parade over Brooklyn streets last Saturday, 19th inst. That is, the cars paraded until the Coney Island Boulevard was reached and there began a semi-sanctioned free-for-all race to the island resort, four motorcycle policemen who had been detailed to act as official escorts, setting pace and thereby rendering the speeding motorists immune from any danger of arrest.

Prospect Park Plaza, where the line was formed, was a scene of great activity from

1:30 o'clock until an hour later when the procession started up Eastern Parkway. It was gratifying to the promoters to see so many cars in line for the start as this was the first parade that had been attempted since the dismal failure that attended the first parade of the organization several years ago, when the sport was in its infancy. Several of the cars made a pretense of decorating, and red and gold, the club colors, were much in evidence. One of the most distinguished cars in line was that of Grand Marshal Charles Jerome Edwards, whose machine was partially covered with the Na-

tional and club colors. "Damon," the club's chef, proudly occupied one-half the front seat and held aloft an immense burgee of red bearing the words "Long Island Automobile Club."

Mr. Edwards' assistants at the formation were Clifford R. Hendrix, J. R. Hegeman, Jr., C. H. Galt, Carl H. Page, H. B. Williams and J. P. Fairchild. The route led the cars up Eastern Parkway to Bedford avenue, to Lafayette avenue, to South Oxford street, to Hanson place, to Fourth avenue, to Lincoln place, to the Park plaza, thence through Prospect Park to the west



TWO OF THE FEW DECORATED CARS.

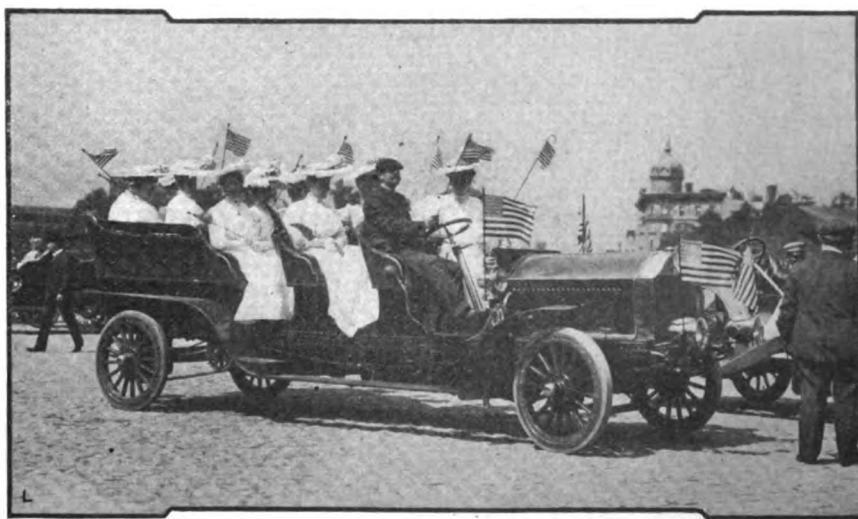
drive to Ocean Parkway and thence to Coney Island.

Edwards. This was the signal for all the cars to increase their speed and the motor-

sea. The parade excited more than the usual amount of interest attendant upon such affairs. Along the route of parade in Brooklyn, many "automobileless" residents displayed their interest by decorating the houses along the course with flags and bunting, while door step and window parties cheered the motorists as they paraded past.



THE SCORCHER SURPRESSERS WHO STARTED THE SCORCH.



A LARGE CARLOAD OF FAIR BROOKLYNITES.



GROUPED ON THE SANDS AT CONEY.

When the boulevard was reached one of the while paraders pushed his lever up notch and scooted past Marshal

cycle "cops," not to be outdone by the automobilists, put on full speed and soon all were scurrying down the avenue toward the

Ready for Open Air Carnival.

Everything now is in readiness for the first open air automobile show and carnival which will begin its three days' duration this afternoon at 2 o'clock at the Empire City track, near New York City, under the auspices of the New York Automobile Trade Association. All the spaces in the big tents and under the grandstand have been allotted and the various events that will provide instruction and variety during the progress of the show have been arranged for. This is the way they have been apportioned:

Thursday—2:30 p. m., flexibility test; 3 p. m., brake test for cars capable of more than 40 miles an hour.

Friday—2 p. m., power and efficiency test; 3 p. m., tug of war; 4 p. m., reverse gear and obstacle race for cars with wheel base of more than 100 inches.

Saturday—2 p. m., vibration test; 3 p. m., traction test; 4 p. m., obstacle race for cars with wheel base less than 100 inches; 5 p. m., contest for best equipped touring cars.

These tests will begin on the even hour and last fifteen minutes, the remainder of the hour being given up to demonstrations on the track. It is quite likely that other events will be arranged. This afternoon's events will not begin until 2:30 o'clock as the show will be officially delivered by Dave Hennen Morris, president of the Automobile Club of America, at 2 p. m., when he will deliver an address.

Where the Clevelanders will Climb.

Gates Mill hill, located ten miles from Cleveland in one of the garden spots of Ohio, will be the scene of the Cleveland Automobile Club's second annual hill climbing contest on Decoration Day. The course is nearly a mile long, is nearly straight and has a rise of 450 feet in 5,280, making an ideal incline on which to test the climbing powers of the machines. A varied assortment of events is provided, as follows: For amateur championship of Cuyhoga county, stock touring cars, owners to drive; for stock cars listed at \$850 and under; for stock cars listed between \$850 and \$1,500; for stock cars listed between \$1,500 and \$2,000; for stock cars listed between \$2,000 and \$3,000; for stock cars listed between \$3,000 and \$5,000; for stock cars listed above \$5,000; for cars weighing between 551 and 851 pounds; for cars weighing between 851 and 1,432 pounds; for cars weighing between 1,432 and 2,204 pounds; free-for-all.

"FREAK" WAS THE FEATURE

But Stock Cars Gave Good Accounts of Themselves in Minneapolis's Hill Climb.

Ideal weather, perfect management and a good course made the annual hill-climbing contest of the Minneapolis Automobile Club, held on Riverside hill, last Saturday afternoon, 19th inst., a complete success in every respect. Fully 3,500 persons lined the course and crowded about the finish to see the big cars as they flashed past. Scenery, ranking as the most picturesque to be found in Minnesota, a perfect spring day and a winding road furnishing a rise of 76 feet in a run of 1,990 feet, made a course which could not be surpassed—in Minnesota. To crown it all, the efficient management of the meet did away with all the delays and false starts which too often mar meets of this character. The police kept the spectators from overrunning the course and not only were there no accidents, but there were no hairbreadth escapes.

From a standpoint of speed the performance of the freakish home-built steam car, made and owned by N. C. Wilson, was the "feature." Although rated at only four and one-half horsepower this low-built racer whistled up the incline in the phenomenal time of $32\frac{3}{4}$ seconds, the fastest time of the meet and a record for the course. As it was not a stock car it was allowed only in the free-for-all, which it won in steaming fashion.

The meet was remarkable from the fact that so many makes of cars were represented in the events; altogether there were twenty-three various makers represented, and they were all American, too. Honors were well distributed in all the events. In the first, for cars costing less than \$800, Gus Ringlund, driving an 8 horsepower Cadillac, had an easy victory while in the class for cars costing between \$800 and \$1,500 three Buicks annexed the first three trophies.

If ever there were any close finishes, the kind that are designated as the "eye-lash" variety, they certainly occurred in the event for cars costing between \$1,500 and \$3,000. Erne Thompson won the event in a Mitchell, his time being $43\frac{1}{2}$ seconds. William Folberth, who drove one of the new four-cylinder Olds cars, finished only one-quarter of a second behind. Third place was won by W. E. Wheeler, who sat at the wheel of a six-cylinder Ford which is, by the way, so far as is known, the first of the new creations to be entered in an open contest. The big car romped up the hill easily in $44\frac{3}{4}$ seconds, which gives evidence—though it is not needed—that this latest creation of Henry Ford's inventive mind will be "it."

George Soules, the well-known Pope-Toledo driver, steered one of the 35 horsepower cars up the hill in $37\frac{3}{4}$ seconds, thereby winning that event by one second from

William Kipper, who sat on a 50 horsepower Thomas. Charles Meyers, 35 horsepower Peerless, finished third, it taking him 40 seconds to reach the summit.

It is evident that there are few second-hand cars in Minneapolis or else their owners are loth to part with them. What should have been the most interesting event—that is, interesting to those whose bank account will not warrant the purchase of a 1906 model, proved to be the most uninteresting, in that only one car ran. The rules provided that all cars entered would be handicapped according to the valuation given on the entry blank, and any one would be given the opportunity of purchasing the car at the figure named at the close of the race. A 20 horsepower Jackson was the only car to show up and it made the ascent in one-half a second more than a minute. The only machine to go against the freak steamer in the free-for-all was a stock Royal, driven by Henry Jardine. Its time was 47 seconds. The summary follows:

FOR CARS COSTING LESS THAN \$800.

1. Gus Ringlund, 10 h. p. Cadillac.....	1:16 $\frac{3}{4}$
2. F. M. Overholt, 14 h. p. Wayne.....	1:24
3. W. C. Thornhill, 8 h. p. Reo.....	1:25 $\frac{1}{2}$
4. C. S. Norris, 8 h. p. Maxwell.....	1:28 $\frac{1}{4}$
5. I. Beard, 14 h. p. Wayne.....	1:57 $\frac{1}{4}$

FOR CARS COSTING BETWEEN \$800 AND \$1,500.

1. H. J. Mich, 22 h. p. Buick.....	0:47
2. E. L. Weiant, 22 h. p. Buick.....	0:48 $\frac{1}{4}$
3. H. E. Pence, 22 h. p. Buick.....	0:51 $\frac{1}{4}$
4. J. A. O'Brien, 12 h. p. Queen.....	0:53 $\frac{3}{4}$
5. J. S. Spargo, 20 h. p. Jackson.....	1:00 $\frac{1}{2}$
6. J. Robb, 12 h. p. Franklin.....	1:05
7. Claus Lende, Granite.....	1:12
8. A. L. Cedarholm, Model.....	1:45 $\frac{3}{4}$

FOR CARS COSTING BETWEEN \$1,500 AND \$3,000.

1. Erne Thompson, 24 h. p. Mitchell.....	0:43 $\frac{1}{2}$
2. William Folberth, 28 h. p. Olds.....	0:43 $\frac{3}{4}$
3. W. E. Wheeler, 40 h. p. Ford.....	0:44 $\frac{3}{4}$
4. W. E. Wheeler, Ford.....	0:45 $\frac{1}{4}$
5. Charles Meyer, Franklin.....	0:51 $\frac{1}{4}$
6. Ed. Clark, Rambler.....	0:51 $\frac{3}{4}$
7. P. R. Brooks, Olds.....	0:52 $\frac{3}{4}$
8. H. L. Jenkins, National.....	0:54
9. W. C. Thornhill, Frayer-Miller.....	0:54 $\frac{1}{2}$
10. Gus Ringlund, Franklin.....	0:59 $\frac{3}{4}$
10. H. B. Allen, Marmon.....	0:59 $\frac{3}{4}$

FOR CARS COSTING MORE THAN \$3,000.

1. George Soules, 35 h. p. Pope-Toledo.....	0:37 $\frac{3}{4}$
2. William Kipper, 50 h. p. Thomas.....	0:38 $\frac{3}{4}$
3. Charles Meyers, 35 h. p. Peerless.....	0:40
4. Gus Ringlund, Peerless.....	0:44
5. George C. Hilgers, 50 h. p. Thomas.....	0:45
6. T. M. Anderson, 40 h. p. Royal.....	0:46
7. Carl Arosin, 50 h. p. Thomas.....	0:59 $\frac{1}{2}$

FREE-FOR-ALL.

1. N. C. Wilson, $4\frac{1}{2}$ h. p. Wilson steamer.....	0:32 $\frac{3}{4}$
2. Harry Jardine, 40 h. p. Royal.....	0:47

FOR SECOND-HAND CARS MADE BEFORE 1905.

1. John Nelson, 20 h. p. Jackson.....	1:00 $\frac{1}{2}$
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Sand Added to Fire Fighting Equipment.

Two hundred weight of sand comprises the latest addition to the equipment of a fire department station that is located near a number of garages. It is carried in buckets on the hose tender and constitutes a tardy recognition by the fire fighting authorities of the fact that fighting a gasoline fire with water is not exactly an effective way of putting it out. This peculiar property of gasoline has been well known for such a length of time that it would seem to be impossible to find a motorist who is not aware of it, but that such is not the case is apparent from the occasional reference to the old time methods in attempts to save a burning car.

UP HILL IN CINCINNATI

Winding Grade had been Rolled Smooth and Some Fine Performances Resulted.

"Vas you effer in Cin-cin-nat-i?"

Ever since John Ransom created this famous catch phrase for the musical comedy, "The Prince of Pilsen," the Ohio city has been famous. Its citizens are noted for three primary things—brewing good beer, raising marriageable daughters, and buying American-made automobiles. Cincinnatians consider that what is made in America is fully good enough for them to eat, drink, wear and use, but that has only slight bearing on this story.

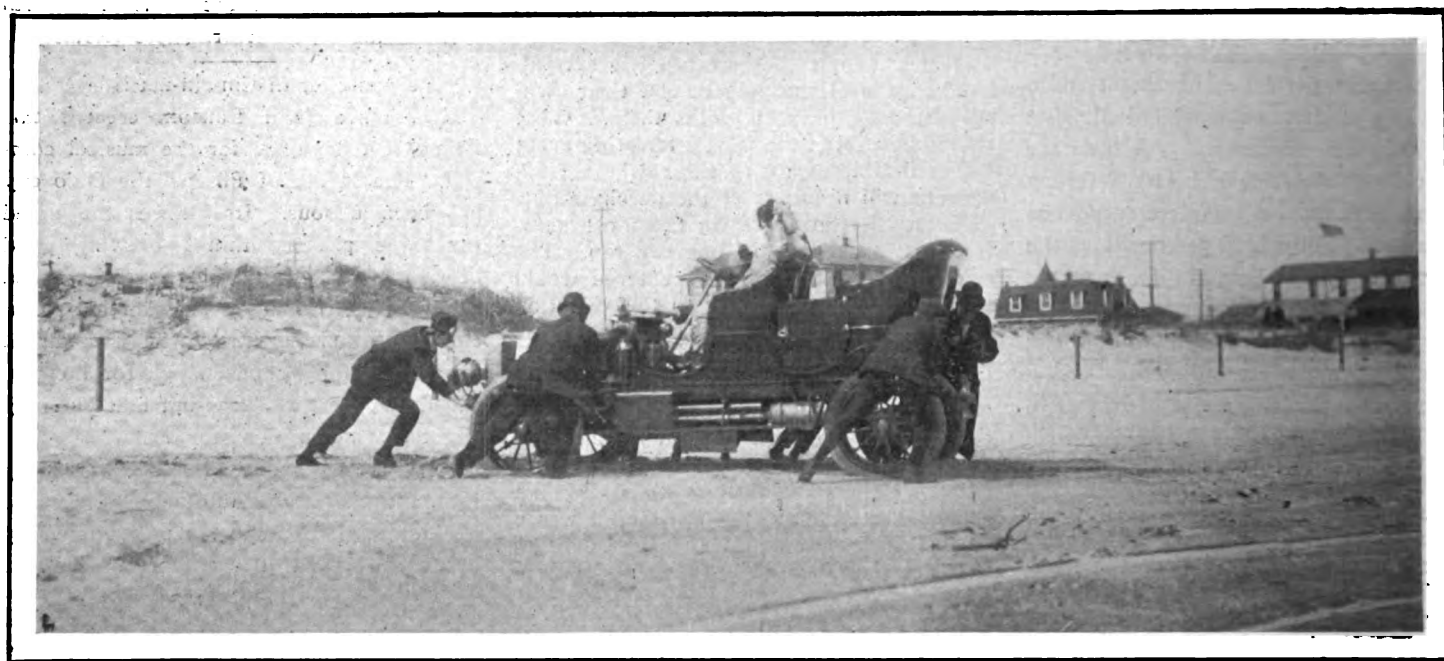
Exactly one year ago last Saturday, May 19th, the Cincinnati Automobile Club held its first event of importance—a hill climbing contest, and it was notable for one thing, there was not one foreign car in any of the events. Last Saturday the club repeated the climb and this year's contest was marked by the same feature. The course was up Paddock hill, a distance of 3,975 feet, or fifteen feet less than three-quarters of a mile.

Five thousand spectators crowded the hillside to witness the events, and it was the first occasion of the present season for the automobilists and other enthusiasts to enjoy an afternoon of sport and a glorious time was had by all without an accident of any kind or an unsatisfactory incident to mar their pleasure. President Val Dutenhoffer, Jr., was to a great extent responsible for the success of the climb. The course was not fast, but it had been well rolled and some excellent performances were recorded, the best being that of O. F. Pogue's 24 horsepower Packard in the free-for-all, which climbed the winding road in one minute and one second. A few of the entrants failed to put in an appearance at the starting point, but there were sufficient actual starters to provide good sport. The special event for lady drivers was scratched because of non-starters, but one of the sex won second place in the event for touring cars between twelve and twenty-four horsepower.

Pope-Toledo, Packard and Franklin cars won all the events. In the first, for runabouts, A. R. Morgan made the best time, 1.26, beating out the Stoddard-Dayton, by A. G. Brunsmann, four seconds. H. F. Fulton, at the wheel of a Franklin touring car, climbed the tortuous road in 1:24, in the event for cars between 12 and 24 horsepower. Miss Charlotte Allen, Stevens-Duryea, finished second five seconds later, and third, fourth, fifth and seventh places were captured by Buicks. F. F. Bradley, Pope-Toledo, made the best time in the touring car class, carrying four passengers, with a Stoddard-Dayton, coming in for second place. Two other Pope-Toledos followed.

Three cars only contested the class for

WHEN DRIVING ON THE BEACH CEASES TO BE PLEASURABLE.



big touring cars and it was won by Bradley in 1.07. Henry Burkhold, Thomas, finished second, and J. G. Hughes, in a Stearns, was third. The fastest time of the afternoon was scored in the free-for-all class. O. F. Pogue drove a Packard in clever fashion and thrilled the crowd by taking the turns at full speed. His time was 1:01. Although the man who finished second has an ominous name for a hill climbing contest—Balke is his legal cognomen—his Packard car carried him up the hill without once missing and in the fast time of 1:02½. Three Pope-Toledo cars, driven respectively by Albert Krippendorf, F. F. Bradley and H. H. Hoffman, finished next in order and Henry Burkhold, Thomas, was sixth in 1:14½. The summary:

FOR RUNABOUTS.

1. A. R. Morgan, Franklin.....	1:26
2. A. G. Brunsmann, Stoddard-Dayton.....	1:30
3. E. J. Carpenter, Duryea.....	1:50
4. Thomas P. Stack, Reo.....	2:17½
5. A. C. Anderson, Franklin.....	2:45

FOR TOURING CARS, 12 TO 24 H. P.

1. H. F. Fulton, Franklin.....	1:24
2. Miss Charlotte Allen, Stevens-Duryea.....	1:29
3. L. W. Anderson, Buick.....	1:34
4. Sidney Black, Buick.....	1:37½
5. J. Baum, Buick.....	1:47
6. Robert C. Crowthers, Compound.....	2:30¾
7. H. C. Hoefinghoff, Buick.....	2:50¾

FOR TOURING CARS CARRYING FOUR PASSENGERS.

1. F. F. Bradley, Pope-Toledo.....	1:09
2. A. G. Brunsmann, Stoddard-Dayton.....	1:18½
3. Albert Krippendorf, Pope-Toledo.....	1:20
4. H. H. Hoffman, Pope-Toledo.....	1:20
5. Standard Auto Co., Pope-Hartford.....	1:30

FOR TOURING CARS CARRYING FOUR PASSENGERS.

1. F. F. Bradley, Pope-Toledo.....	1:07
2. Henry Burkhold, Thomas.....	1:23
3. J. G. Hughes, Stearns.....	1:28½

FREE-FOR-ALL.

1. O. F. Pogue, Packard.....	1:01
2. W. W. Balke, Packard.....	1:02¾
3. Albert Krippendorf, Pope-Toledo.....	1:05½
4. F. F. Bradley, Pope-Toledo.....	1:06
5. H. H. Hoffman, Pope-Toledo.....	1:11
6. Henry Burkhold, Thomas.....	1:14½
7. J. G. Hughes, Stearns.....	1:20
Sidney Black, Buick.....	1:37

Horses and Oldfield Thrill Evansville.

Barney Oldfield, who, with the aid of "Herr" Paul Albert, is now accumulating a new bank account on the strength of his having had at various times during his meteoric career numerous hairbreadth escapes, lost his nerve last week. So did Paul Albert, but it was not the fault of these hippodrome drivers. Having left hospitable Texas, Oldfield and Albert were billed to perform their usual "record-breaking" stunt on last Wednesday, 16th inst., for the edification of the equinically inclined residents of Evansville, Ind.

This frontier city is a great town for horse races and, of course, the events were run on the fair grounds track, where several thoroughbreds cavorted in the infield while the automobile races were in progress. The bit of unanticipated excitement occurred in the final heat of the Oldfield-Albert match and it furnished the 1,000 or more spectators in the grandstand enough thrills to last them a lifetime and this was their first automobile race meet, too.

It was in the third lap of the final two-mile heat that Oldfield and Albert thought the last call had come. They were completing the mile and one-half and had just rounded the lower turn when a gate leading from the track to the infield blew open. The horses that had been galloping in the enclosure, evidently were piqued at the automobilist usurpers in using the oval which had always unquestionably been theirs, and they dashed out upon the track, seemingly bent on beating the racing cars up the back stretch. At that minute the cars were traveling at the rate of fifty miles an hour.

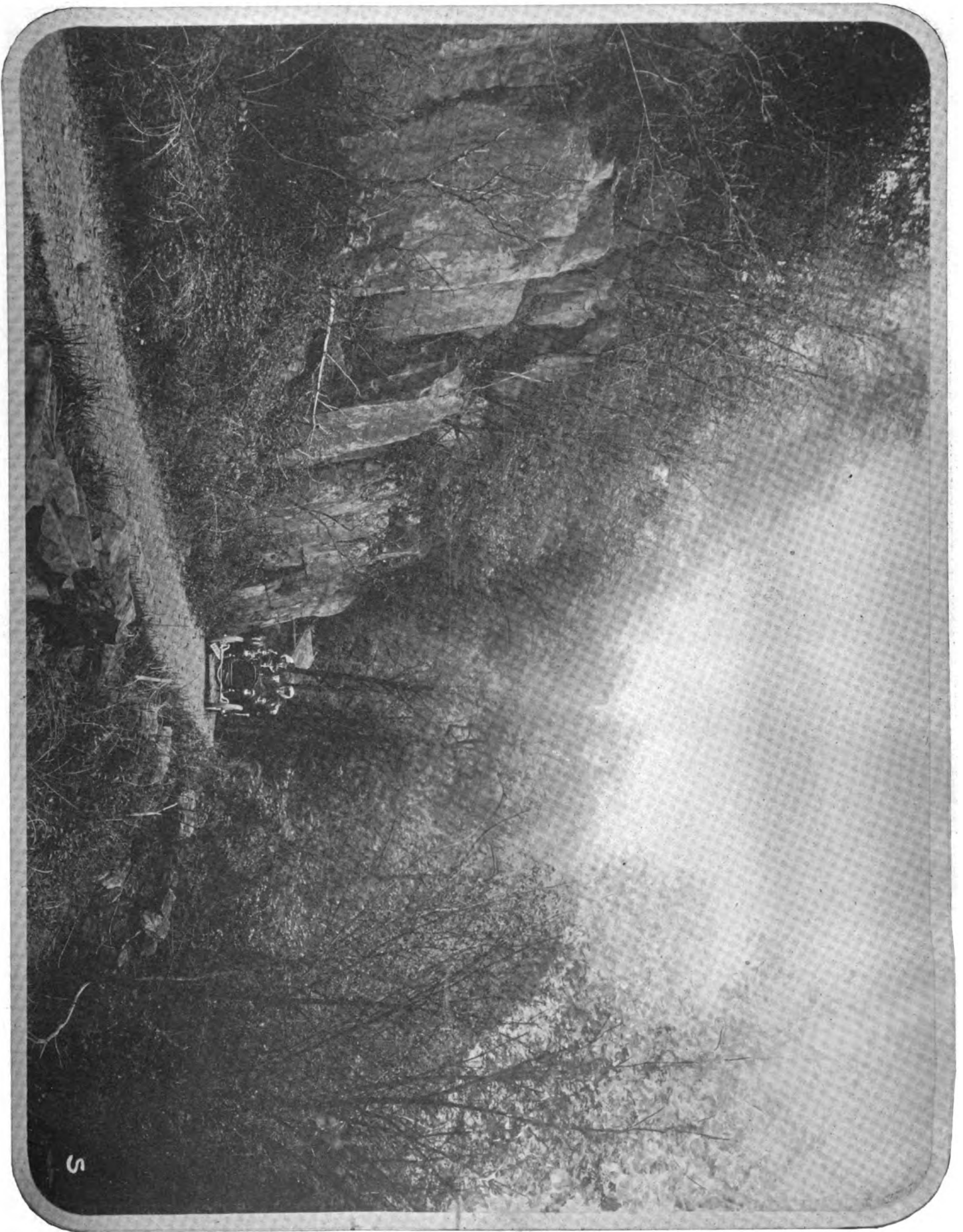
The spectators in the grandstand saw the imminent danger, but the cars had kicked

up such a dust on the last lap that Oldfield and Albert failed to see their pacemaking horses as they rounded into the straight. If ever spectators sat rooted to their seats, too paralyzed to move or utter a warning cry, their blood frozen in their veins, and with horrified looks at the impending catastrophe, those Evansvillians did. Just forty feet from the drove of horses, at least a local reporter says so, and his veracity never before has been questioned, Oldfield and Albert espied the danger at the same instant. There was a grinding of brakes a cloud of dust as the tires bit into the dirt, and the spectators breathed again. Some say that the "Green Dragon" prodded one of the horses just as it—the car—came to a standstill; the horse is running yet.

Had it not been for this thrill the meet would have been a dismal failure. Eight or nine events between local cars were scheduled to take place, but at the last minute each of the local drivers found something or other the matter with his car and all these events had to be called off. The first heat between Oldfield and Albert was won by the latter in four minutes. Oldfield won the next, his time for the two miles being 3 minutes 8 seconds. He also won the last despite the interference of the automobiles' predecessors, the time being one second faster than that of the previous heat. Later Oldfield went one mile against time, from a flying start. He completed the first lap in fast time, but a rear tire punctured on the second and the two circuits were traversed in 1:22.

The only other event of the afternoon was a one-mile race for motorcycles, in which Samuel Troyer, riding a R-S, won the final heat from Otto Geiss, Indian. The time was 2:34½.

"FAR FROM THE CITY'S CROWDED STREETS."





"LETTING OUT A LINK" ON THE LONG, WINDING GRADE.

OWNERS ARE LIABLE, TOO

Massachusetts Establishes Precedent that they Share Guilt of Chauffeurs.

Whoever participates in the overspeeding of an automobile is criminally liable, according to a decision of a majority of the Supreme Judicial Court handed down last week in the test case of the Commonwealth of Massachusetts vs. Roland H. Sherman. If an owner or, in fact, any member of his family, allows an automobile to be run at a speed greater than that allowed by law he is equally liable with the chauffeur.

Sherman was found guilty in the Central District Court of Worcester of driving his car faster than twelve miles an hour, that speed being the maximum allowed by the by-laws of Leicester. In the Superior Court he was found guilty by a jury and he contended that he could not be found guilty on the proof submitted. It was agreed that the automobile was registered at the time with the Massachusetts Highway Commission by the defendant and in his name; that he was in the automobile, which was going in excess of twelve miles an hour, that being the maximum speed at which automobiles were allowed to go in Leicester by the town by-laws; that he was one of five people in the vehicle, was not himself operating it, but was seated in the tonneau.

The court holds that the proof was sufficient and goes on to say that the automobile was registered with the Massachusetts Highway Commission by the defendant, and in his own name, warranting a finding that he was the general owner of it or that he had a special property therein which gave him control thereof. It is provided by the statutes that an automobile must be registered by the owner or person in control thereof. The court holds that if he is guilty here he is guilty not as owner, but because the evidence warranted by the jury in finding as a fact that he participated in the machine's being run at an illegal speed. The court says the offense with which he stands charged is a misdemeanor and not a felony, not being punishable by imprisonment in State prison. If it be material the court says it is settled that in misdemeanors there are no degrees, but that all who participate in the commission of the offense are principals and may be charged as such.

The court further holds that the Commonwealth made out a prima facie case of participating by the defendant in the machine's being run at an illegal speed while the defendant, being either the owner of the machine or having a special property in it that gave him the right to control it, was in the tonneau. The court holds that the facts warranted the inference that the defendant knew and allowed his machine to be run illegally. The case is a prima facie case only and may be contradicted or explained. But uncontradicted or unexplained it does, says the court, warrant that in-

ference and so makes out a prima facie case.

In the district court the defendant was fined \$15, but after his conviction in the Superior Court, Judge Crosby ordered the execution of the sentence stayed until the determination of the case by the full bench, having entertained a reasonable doubt as to whether the judgment should stand. Even the full bench was divided, but the majority decision establishes the law that will be followed in the State of Massachusetts.

France's "Code de la Route."

Rules of road usages, formulated into a code and subdivided under ten headings, as a sort of decalogue, have been adopted by the Automobile Club of France, by the Touring Club of France and by the French federation of clubs. These are known as the "Code de la Route" and are supposed to be observed by all members. Here are a few translated excerpts:

"If the road is free, the driver may keep in the middle of the road, but he must leave on his left sufficient space to allow another car faster than his too pass, following the same road.

"When passing through villages the speed should always be so reduced as to permit of stopping the car within a distance of 30 feet if the road is broad, and of 10 feet if the road is narrow.

"When nearing men, horses or cattle, the horn should be sounded so as to awake their attention, and the driver must slow down if the road is narrow. If the horses or cattle are scared, the driver must always slow down, and, if necessary, stop.

"In case of accidents, the driver must at once stop and give all possible help to the victims of the accident. When the injured have been properly seen to, and when medical aid has been secured, the driver should at once find witnesses capable of giving a thorough account of the circumstances under which the accident happened.

"A car passing at the time the accident happens must also stop and offer the best possible aid to the injured.

"Every automobilist must give assistance to any other who asks it.

"In case a car should suddenly run short of gasoline, the driver of a passing car, on being asked, must deliver whatever he can possibly spare. This gasoline must be paid for at once."

For the Annual Display of Charity.

Mayor McClellan, John Jacob Astor, W. B. Scarritt and Robert Lee Morrell are among those who have placed their cars at the disposal of the New York Motor Club for its orphans' outing on June 6th; the club is, however, still crying for more. The Mayor has agreed to review the "parade" from the steps of the City Hall, the club having undergone no change of mind regarding the propriety of dispensing charity with a brass band.

FINDS THE ACT DEFECTIVE

Pennsylvania Court Upsets the State Law—Violates the Constitution.

The decision handed down by Judge Newcomb, at Scranton, last week, declaring Pennsylvania's automobile law, which has been a thorn in the side of the motorists of that State ever since it was passed, to be unconstitutional, came as a piece of welcome news.

The decision was rendered as the result of a motion to quash an indictment against one Alfred Harvey, who had been arrested for operating an automobile without a license. That provision of the law is found in the sixth section, which reads as follows: "No person shall be allowed to operate any motor vehicle upon any of the public highways aforesaid until the owner thereof shall have procured a license from one of the cities or counties of this commonwealth."

The defendant's attorneys attacked the constitutionality of the act on two grounds: first, because its title does not express the subject matter of the statute in accordance with the provisions of the Pennsylvania State constitution; and, second, because it does not bear uniformly on all persons and vehicles, or even on all motor vehicles.

In rendering his decision Judge Newcomb dismissed the second contention from consideration and based his opinion entirely on the first. The opinion is as follows:

"The first reason, however, is based upon a palpable constitutional defect. The section which defines the offense alleged in the indictment relates only to a license to be issued to the owner. Nothing is said there or elsewhere in the body of the act about licensing any other than the owner. The penalty prescribed is incurred through the owner's failure to procure a license. But so far as the title says anything on the subject it indicates a purpose to put the duty of getting a license only on the person of the operator and to attach the penalty to his default in that regard. In our judgment there is a substantial variance between the title and the body of the act in that respect, and it brings section six within the prohibition of section three, article three of the constitution, which requires that the subject matter of a statute be clearly expressed in its title."

Care Necessary in Wiring.

As dry air is the best possible insulator for the electric circuit, care should be taken in arranging the wiring of ignition circuits to see that the conductors are as little crowded as possible and that they stand away from metal parts. Also, as water and moisture may serve to break down the most perfect insulation imaginable, care should be taken to preserve the conductors from rain, mud and oil.

IMPORTANCE OF MIXING

Is Still of Potent Influence in Obtaining Fine Finishes—Faults of Mixers.

Some one has remarked in the public prints that the necessity for the painter to be a paint mixer no longer exists, which, upon analysis, will be found true only in part. It is admitted that the color grinder comes into the market with a multitude of colors finely ground and compounded requiring a simple thinning and beating with turpentine to fit them for application. But there is another multitude of pigments that require special mixing and manipulation ere they are ready for use, not to mention a great variety of shades, tints and colors to be made up by the painter for certain requirements which the color and paint manufacturer cannot be supposed to provide unless specially ordered to do so. To say, therefore, that a painter need no longer seek to know how to mix paints, to match colors, and to otherwise prepare pigments for use upon surfaces is to misinterpret the actual needs of the situation, says the Carriage Monthly.

As a naked fact the automobile painter should be an expert paint mixer, thoroughly versed in every detail of the work, and a student in the history and composition of pigments. The mere mechanical feature of paint mixing is not a difficult accomplishment, although one requiring care and practice, but the knowledge covering the study of proportions and balances, coloring and covering powder, and the hundred and odd controlling factors connected with the mixing problem, is a matter of gradual accumulation determined, of course, to a greater or less extent, by the ambition of the painter.

It is certain, moreover, that with the infinite variety of colors required to exploit the modern phase of color practice, a broader and more scientific knowledge of pigments, both in their crude state and in their manufactured condition, is an essential part of the painter's equipment.

The basic principle of paint and color mixing is thoroughness. Unfortunately, the term thoroughness has a formidable ring to it as comprehended by a very great proportion of painters who would enjoy being looked up to as trade experts if they could by some hook or crook avoid being thorough. The thoroughly mixed pigment is immensely fortified to resist the wear and tear of service imposed upon it. In other words, thorough mixing begets thoroughness in the product. It furnishes strength, durability, depth of color and brilliancy of tone, besides excellent working properties.

Two men may be set to the apparently simple task of thinning a cup of ordinary drop black. The color in given proportions is taken into the cup, and one man pours in at one great draught enough turpentine to thin the whole mass of black. The sec-

ond man adds to the color a small quantity of turpentine, and proceeds to beat the mass into a pasty condition, adding little by little the thinner until by skillful stirring and mixing the color liquifies and comes to the right brushing consistency. In its condition in the cup and under the brush it is uniform, with a smooth, free working quality that gives to the painter much pleasure in applying.

The first painter with the color submerged in the turpentine digs and splashes and makes a brave show of turning in a smooth article, but to no purpose, because his pigment lacks uniformity of mixing, evenness of consistency, and by virtue of these failures, brilliancy, and a just balance of color.

Perfect incorporation and mixture of all the particles of a paint is essential if uniformity of strength, coloring and covering capacity would be assured. In the mixing there is the property of some colors, when united with other colors, of asserting their strength disproportionately, in which condition the resultant color, if applied to the surface, will develop streaks and with apparently different shades of the same color. Especially is this true of the green pigments, and of the dark blues, to some extent, and even of certain reds and lakes.

The fact that two or more even colors mix well together does not lead to the established conclusion that the same colors liquify easily or evenly, for in truth they very often do not, in which case it is only by the most thorough process of mixing, adding ingredients, both liquids and solids, gradually, and by careful measure, that a smooth compact and fine working color is produced. The painter who aspires to become an expert paint mixer will early learn to respect the practice of measuring with exactness the quantities of the materials used, both liquids and solids, to make a given pigment or color. While it is admitted that this measure of quantity might not absolutely govern in mixing a second consignment of this same color, owing to the varying strength of colors as furnished by different firms, it nevertheless holds true that these quantitative measurements furnish a clearly defined line of mixing procedure.

Probably no small share of the flaking and scaling of certain colors which under the modern requirements of auto-painting must be shop mixed and compounded, is due to a lack of thoroughness in the mixing operations. In color mixing the finished product, to be of established value, must be equally strong in all its parts. Any least point of weakness is qualified to measure the resisting strength of the entire surface, on the principle that a chain is no stronger than its weakest link. The strength and stability of colors largely depends on how they are fortified in the mixing and preparation for the surface. And in this not simply is a knowledge of the methods required to obtain a given result essential, but also constant and unflagging zeal in attention to detail.

WITHOUT GEAR CHANGE

Olds Undertakes Journey "on the High" and Completes it Without Trouble.

While the gearless car has not as yet arrived, that is to say, the car which may be successfully operated at all times without the requirement of the cumbersome change speed mechanism, progress in design has reached a point where it is possible to drive a machine for many miles and under average road conditions without having recourse to that mechanism, traveling at perfectly normal rates of speed, and without the display of extraordinary skill or trickery.

This was proved beyond a doubt by the most unusual performance of the 26-28 horsepower Olds (Palace) touring car, which on Saturday, 19th inst., traveled the 75 miles from New York to Poughkeepsie under the alternate tutelage of Earnest Keller, who is to drive the Olds candidate in the forthcoming Vanderbilt cup race, and Joseph Tracy, the well-known engineer-driver. The trial was made under the technical observation of two representatives of the New York Motor Club, and was consummated without a hitch of any sort in 5 hours and 10 minutes.

The car used was the regular model "S," a stock machine in every respect, and the only alteration made in it for the trial was the sealing of the speed changing lever in the high gear. This, however, since the motor gives a speed range equivalent to a variation of from three to fifty-two miles an hour, proved to be no great detriment to the performance.

With Keller and Tracy as drivers, and Paul L. Snutsell and E. L. Ferguson, of the Motor Club as observers, the start was made from the Oldsmobile agency, 1653 Broadway, at 12:35. The trip to Yonkers was made at an average of 14 miles an hour, and from there on, Dobbs Ferry, Tarrytown and Ossening were passed without incident. Near the top of the long sandy hill south of Croton, the first real test of the car was encountered. The climb was made bravely, however, until near the summit a truck was overhauled, the driver of which, hearing the horn and becoming panic-stricken, fled, leaving the team in the middle of the road. It was impossible to stop, and the road was narrow, but the passage was safely negotiated via the ditch, with the car riding on two wheels.

On the Welcher hill, north of Croton, more difficulties were encountered in the shape of new laid dirt and traffic, but it was traversed without serious loss of time. At Peekskill, a stop was made for supplies, and the Annisville hill, just beyond, was negotiated with a flying start and a romping finish. From there on through Fishkill and Wappingers Falls, the run was uneventful, and the Nelson House in Poughkeepsie was reached without difficulty at 5:45.

TOO MUCH VALVE GRINDING

How that Practice is Overdone when the Valves are not at Fault.

Almost every motorist who runs his own car has a hobby and with many this is valve grinding. Any loss of power or faulty running that cannot be readily traced to some other cause is generally considered sufficient provocation to go through the process of grinding the valves in. Trouble with the valves is not half so prevalent or frequent as might be imagined from the great amount of advice that is handed out on the subject. Given ordinary care there should be no necessity to grind the valves of a new engine during its first season on the road unless it be used to an excessive extent. Over lubrication will often cause a temporary loss of compression as the particles of carbon produced will sometimes find their way between the valve and its seating. When to an excess of lubricating oil is added the practice of frequently flushing out the valve chambers with kerosene the trouble is apt to be worse, as this simply washes the carbon directly into the valve seats.

Too much attention to the matter of valve grinding is more apt to result in damage than otherwise for as the operation must be carried out by hand it is difficult to maintain the valve absolutely accurate in its seat while turning and the result is calculated to disturb or distort the concentricity of the seatings, which will sooner or later entail the somewhat expensive process of having them trued up by machine. Then again the loss of compression may be due to the poor fit of the valve stem in its guide. It may have become jammed slightly in one way or another, probably through dirt or carbon particles collecting between the stem and the guide which will prevent the spring from closing it tightly. As some of the exploded charge will blow out through the small opening thus left, the faces of the valve itself and the seating will be blackened and all the symptoms will point toward the necessity of regrinding where it does not actually exist. Still another cause is imperfect contact of the tappet with the spindle and this is a more or less common cause of lost compression, as striking at the side of one or the other is apt to distort the valve spindle and thus prevent the valve from seating well.

Reserve Batteries of the Right Sort.

After an extensive course of experimenting, supplemented by continued actual use under observation, the National Carbon Co., Cleveland, Ohio, has succeeded in evolving what every user of the dry battery has so long and ardently hoped would one day materialize—a cell that could be absolutely relied upon to supply current in an emergency. It is, of course, always customary to carry two sets of cells, but in order to

derive the greatest benefit from them they must be used alternately. If one be employed continuously and the other allowed to stand idle the one that is not in use will deteriorate almost as rapidly as the other, and the chances are that when called upon through the failure of the first it will also fail to respond. When used alternately there is a risk of both sets giving out simultaneously and it is to avoid this as well as to insure an absolutely dependable source of current in an emergency that the new cell has been devised.

It is being put on the market under the appropriate title of Reserve and is only intended for this purpose, its construction being such that it suffers absolutely no deterioration until put into actual use. As may be surmised, it is in reality as well as name a perfectly dry cell—all moisture has been omitted so that the chemicals remain inactive until the water is introduced when the cell becomes the same as a fresh one just from the factory. The water is introduced into the cell through the medium of a hollow carbon element and the ease with which a perfectly fresh set of cells may thus be obtained will go a long way toward eliminating the worry and guess work on the question of ignition when on a long tour.

Experience has shown that two sets of cells when connected in series—multiple, that is, each set in series and the two units in multiple, will last from 10 to 25 per cent. longer than a single set under the same circumstances, and as with the new cell an extra "live" set is not necessary as a reserve, the makers have designed a new ignition system employing a running battery wired up in this manner and a set of Reserve cells for emergencies. Once the latter have been wet they must then be used continuously until exhausted just as if they were fresh cells from the factory. On this account, they should not be called upon until the running battery has actually given out; the Reserve set may then be switched into the circuit and as soon as an opportunity offers made a part of the new running battery. A new set of Reserve cells then brings the equipment up to normal again and it is ready for any emergencies. These cells are being placed on the market in the three standard sizes usually supplied for automobile use.

Now for the Respirator.

Since the dust will not down it must be provided against and a foreign authority is of the opinion that a motor respirator is what is needed to keep the all pervading powder out of the nostrils and mouth. A combined respirator or nose and mouth shield and a pair of goggles is suggested and anyone who has done a hundred miles or more over a dust covered road on a hot day can appreciate what an amount of comfort such a device would afford. It would provide an opportunity for the cartoonist to give his fancy more play, though some of the goggles at present in use could hardly be worse from the ornamental point of view.

IF WHEELS ARE OUT OF LINE

The Many Unsuspected Troubles that may Result—Often Easy of Correction.

One source of lost power in the car which it but little recognized by the average driver from one cause or another, which results in one or more of the tires running at an oblique angle to the proper course of the machine with consequent decrease in effective power, and increase in wear upon the tread. Aside from these two important considerations, the result may also be transmitted further to include a series of undue reactions in the mounting of the chassis due to a distortion either directly caused by or secondary to the original source of the disarrangement of the wheels. Primarily, of course, such disalignment may be caused by the springing of an axle or steering knuckle, or the bending of a steering connection or distance rod, but in addition to this, some mal-adjustment of parts, or some far more remote cause may be responsible for the condition, which, in itself, may be the only visible indication of trouble.

If the disorder be located in the steering group, of course its existence, and usually its cause as well may readily be determined by the action of the steering gear itself, the result of a set in the gear, or even of a bend in one wheel being noticeable in the tendency of the car to fall off its course. By lining up the wheels, front and back, it may be determined in a general way where the fault lies, and the remedy is usually self-suggestive. Of the trouble common to the steering group proper, the bending of rods and arms are the most frequently to be met, and fortunately, as well, the most easily to be remedied. Bent front axles are less common, and by the same token, far harder to locate and correct; bends in the knuckles are least frequent.

In the driving wheels, a difference in the tensioning of the radius or distance rods, is all too prevalent, thanks to the hurried work of the average repair man, and also the most easy to correct. But, by the same token, it should not be allowed to continue, as it serves to set the rear axle at an angle to the chassis and swing both wheels out of line. Another cause of trouble in the rear wheels, which also is to be found occasionally in the front of the machine, arises from the offsetting of the springs due to the side thrusts generated in rounding curves at speed. This difficulty results in shifting the axle bodily to one side, and causes the car to travel crab-wise, or else to line up with its course fore and aft, with one or both of its axles set at an angle to the line of travel. Obviously, this must result not simply in wearing the tires unevenly and unnaturally, but also must generate a host of stresses all unprovided for by the designer.

generate a host of stresses all unprovided for by the designer.

With a shaft driven machine, the same thing may occur through the bending of a strut rod and the consequent disalignment of the rear axle or its offsetting. Or, perhaps, a sudden lurch into a rut may cause an unusual strain upon the springs which is too sudden to be absorbed by them in the usual way, and therefore results in the bulk of the load being momentarily taken by the dumb irons, resulting in their distortion, and the resulting evil of disalignment.

But whatever, may be the cause, it is evident that aside from a bend in the axle or steering knuckle which affects but one wheel locally, the result upon the machine as a whole must be to cause additional strain upon some of its parts, and not infrequently upon a whole group of them. Thus, with a chain-driven machine, the cross shifting of the rear axle may be sufficient to cause the chains to ride and break, doing considerable damage to the transmission, perhaps even bending the counter-shaft in the process. While, in a similar way, the disalignment of the driving axle of a shaft driven machine may cause side thrusts upon the axle sleeves, resulting in springing them and ultimately producing that "toeing-out" effect which was the bane of all the earlier attempts at live axle construction.

In fact, the nature and extent of the injury which may be done to a car by neglecting to correct any error which may contribute to a dis-alignment of the wheels, is too broad and far reaching to be possible of delineation. It may result in the total destruction of the machine, as a matter of fact, through the causation indirectly or otherwise, of an accident on the road, or, it may go on for a long time, only showing itself in the excessive wear on the tires. But whatever its effect, its speedy and certain correction is an absolute prevention of further trouble and may lead to the discovery of a condition far more serious than the present symptoms would seem to indicate.

Why the Car Wouldn't Go.

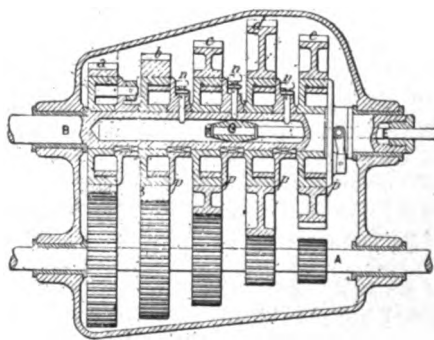
"It won't go and you simply can't make it go," was the utterly disgusted comment of a dilettante motorist to the repair man who had been sent out on the road in response to urgent calls over the 'phone to the garage keeper. And to substantiate his statement the new hand skillfully turned the switch to the point representing the reserve set of accumulators and gracefully turned the crank a few times with absolutely no result. The man from the garage was impassive and silent; without making a remark he quietly investigated what was behind the switch. A wire leading from it had snapped off close to the terminal in plain sight and there was no second set!

A roll of adhesive tape should be carried in the tool kit even more religiously than a sheet of court plaster in the note case.

AS TO INDIVIDUAL CLUTCHES

Renewed Interest Apparent Abroad—One of the Recent Developments.

While the sliding-pinion type of change-speed gear is being accorded the greatest amount of usage at the present time, it by no means follows that it is the best suited to the needs of the motor car, or that it is in any sense of the word final in its adoption. Many authorities, indeed, are of the opinion that it is not, and not a few are striving to develop some other and more suitable arrangement. Of these, the majority of the American designers are working over the friction drive problem, while



across the water, this and the individual clutch system, already discarded by more than one American constructor, are coming in for a share of research. In this connection, it is interesting to note in France and in England, the reappearance of the latter type, long since practically discarded there, one example of which is seen in the Lansac and Boulrier transmission which appeared there at the beginning of the year.

In this design, the transmission is always through the lay shaft, all gears being constantly in mesh, and the successive connections being made through the medium of a plunger rod riding in the hollow of the driven member. Such is the arrangement that the gears lie close together, and the casing being built to embrace them closely, but little space is taken up. The clutches themselves, in which as is commonly recognized the solution of the problem lies, are of the internally expanding type, very similar in construction to those employed so extensively in rear wheel brake construction, and apparently, there is nothing to interfere with complete and satisfactory action at all times and under the most rigorous of conditions.

Referring to the accompanying illustration for details, it will be seen that the driving gears are all solid with the main motor shaft A, and that the driven gears ride loosely upon the exterior of the driven shaft B, to which are keyed the clutch members. These, which consist of split rings separated by rotating dogs, are actuated by plunger pins, n, which are thrust outwardly by the action of the plunger G on the end of the shifting rod E, riding within the hol-

low interior of the secondary shaft. The pinions a, b, c, and d, are arranged to give even graduations of speed according to their size, while the pinion e, meshes with an idler to give the reverse.

It will be noticed that except for the too sudden engagement of the clutches, there is little or no possibility for a false movement on the part of the driver to injure the mechanism, that no two clutches can be thrown into action at the same time, and that furthermore, there is little about the contrivance which is liable to become disordered. As to the clutches themselves, their construction, backed up as it is by the tenets of common practice in another, but by no means unimportant line, would seem to be sufficient guarantee of their ability to act satisfactorily, granted only that they are designed to give the operator sufficient leverage to apply them with proper force and without the expense of too much labor.

No Negro Chauffeurs Wanted.

For the purpose of setting a fixed scale of wages, excluding negroes from the business of driving automobiles, and advocating legislation which will require all chauffeurs and drivers in Indiana to stand a State examination before being allowed to operate an automobile in that State, the Chauffeurs' and Repairers' Association of Indiana has been formed at Indianapolis. To promulgate the objects set forth in the constitution these officers have been chosen: President, William Davidson; vice-president, William Ruggenstein; secretary, Fred Wiltshire; assistant secretary, Fred Seegar; treasurer, George Swihart; directors, Harry Bell, Minor Farley, Gus Krause and Jesse Southerland.

One Cause of Tire Wear.

Of course the amount of wear which is exhibited by the rear tires should considerably exceed that which is developed by those in front, but if at any time it appears that the wear is in any way excessive, the condition of the differential should be carefully examined into. For a sluggish condition of that organ will cause the wheels to skid unduly, producing serious effects in the driving shoes.

Misuse of the Pliers.

It is but a half-blown mechanic that places his sole dependence in a pair of pliers. They serve a useful and multifarious purpose, but when made to take the place of a monkey wrench, they soon burr and spoil the nuts, as well as failing in many cases to loosen them.

If the Tires do not Track.

When the wear on a tire is out of the centre-line of the tread, the cause may be sought in the axle near the wheel. If more than one tire displays the same tendency, the cause is further to seek, but by the same token, it is possible to prolong the life of both, by exchanging them.

HANDLING THE SPARK LEVER

Some of the Things that Puzzle the new Operator—How the Charge Ignites.

Handling the spark lever is one of the elements of driving that puzzles the novice at the wheel for some time. The throttle and its action are perfectly plain—more speed, more gas—the operation is exactly similar to that of opening the throttle on a locomotive and it seldom takes the beginner long to master the knack of handling the lever nor of understanding the why and wherefore of it. With the spark it is a totally different matter; there is the same amount of spark regardless of the position of the lever, and—well, electricity is such a mysterious thing anyway, so what does the lever do when it is moved?

Lifting the bonnet and showing how the movement of the lever causes a corresponding shift in the location of the timer, where batteries are used, or in the position of the armature in the case of the magneto, only tends to puzzle the seeker after knowledge to a greater extent. The amount of motion appears to be relatively insignificant and its function so impossible of comprehension from merely viewing its operation while the motor is inert, that it is not difficult to see why it should confuse the uninitiated. Shown with the motor in operation and its effect is immediately apparent, but why such a result should follow such a cause is something too deep for the average beginner to fathom.

The reason is to be found in the fact that even with the critical mixture, which means with the proportions of air and gas as nearly correct as it is possible to obtain them, an appreciable length of time is required to thoroughly ignite the charge. There is an impression that the explosion follows the occurrence of the spark instantaneously and such is the case, though it depends largely upon the interpretation that is placed upon the word. The moment the spark leaps the gap in the plug the mixture immediately surrounding it becomes ignited; if it did not there would be no explosion at all. But setting fire to that part of the charge that immediately surrounds the plug and burning the entire contents of the cylinder, which is a necessity if the proper amount of expansion is to be obtained, are two very different things. Ordinarily speaking, one follows the other so closely that both are practically one operation and may be termed instantaneous, but as with the shutter of a rapid fire camera, there are different degrees of instantaneity and regardless of how quickly the shutter may be made to open and close, an appreciable amount of time is consumed.

The theory of spark regulation consists in timing the occurrence of the explosion so

that it always takes place at the point in the stroke where it will effect the most, consistent with the speed. And this, in brief, explains why the spark should be retarded when the motor is running slowly and advanced as the speed increases. If the motor be running very slowly, say 250 r. p. m., then the spark could be set at the extreme point of retardation so that the explosion would take place just as the piston was starting downward on the power stroke or even after it had passed the dead center for an appreciable fraction of its stroke. In such a case much of the compression would be lost before the explosion occurred and but little power would be developed. With each notch on the quadrant that the spark lever was advanced the time of the occurrence of the explosion would be brought forward a portion of the stroke of the piston—probably a small fraction of an inch, until with an extreme advance the charge would begin to ignite quite an appreciable length of time before the piston had passed the dead center on the compression stroke and a sharp knock would be felt with every explosion.

In such a case the spark is "too early" and the initial force of the explosion and the stored energy of the flywheel are combating for the mastery. The thumping that results is quite alarming to the beginner and it is well that it is so for nothing will ruin an engine quicker than to permit it to run under such conditions. But if with the engine running at four times the speed assumed in the previous case, which would make it 1,000 r. p. m., it is obvious that unless the spark were advanced a large part of the energy developed would be wasted as the piston would have completed a considerable fraction of its downward stroke before it felt the impulse of the explosion and the latter would be correspondingly weaker owing to the loss of compression. But by making the spark occur before the piston has quite completed the compression stroke, it will readily be apparent that by the time the entire charge is ignited the speed of the crank will have advanced the piston to a point best calculated to take advantage of the full benefit of the explosion throughout the whole working stroke of the motor.

Cause and effect may best be illustrated by assuming a car to be running along a level road with the throttle half open and the spark well advanced, some motors being most readily controlled with the spark alone. As soon as the car starts up a long and somewhat steep hill the speed of the motor will gradually decline until it is going at a comparatively slow rate and unless the spark be retarded it will begin to develop an alarming knock; the speed has dropped to a point where the spark is much too early for the energy of the explosion to be taken advantage of and while the car may thump its way up the remainder of the hill, it is likely to stall unless the spark be retarded to a point where the knocking is no longer heard.

RELATING TO LUBRICATION

The Real and the Ideal—Size of Cylinders a Factor—Tests of Oils.

Some interesting points in the all-important subject of lubrication that have either not been touched upon at all previously or dismissed with slight attention were brought out in a paper on this topic read to the members of a foreign organization by J. W. Brooker. Before actually touching upon the subject of lubrication proper, he brought out the fact that there is more than one kind of friction; when the surfaces of two solid bodies slide or roll upon another what may be termed "solid" friction is set up, and when fluids do likewise "fluid" friction. Lubricants minimize the former, but they set up the latter themselves.

The ideal construction is one when the sliding surfaces are completely separated by the film of lubricant; but it is seldom attained, so that for all practical purposes there is a compound friction due to the action of surfaces partly separated by a fluid in which there is solid friction where the bare surfaces touch one another, and fluid friction where the lubricant intervenes. Viscosity is the property by virtue of which the lubricant forms a comparatively thick film between rubbing surfaces. The more viscous the lubricant, the greater is the pressure which can be sustained; but, at the same time, unnecessary high viscosity creates unnecessary fluid friction, and the viscosity of the lubricant should, therefore, be in proportion to the pressure which it will have to sustain.

One of the functions of a lubricant is to overcome or neutralize accidental variations of the smoothness of surfaces, which though almost infinitesimal in magnitude, cause variations in the friction and always tend to produce overheating, and it is solely a matter of chance when these tendencies preponderate over the lubricating effect of the oil. A light oil lubricates as well as a viscous one when all is smooth, but when a minute irregularity occurs, such as grit or rough places on the surfaces, heat is generated when the oil becomes too thin, and there is a risk of seizure taking place. By the use of a plentiful supply of a viscous lubricant this risk can be considerable reduced. A new engine under lubricated will seize much more readily than one well run in. There are three other conditions to meet which a viscous lubricant is necessary, viz., great pressure, slow speed, and high temperature.

"Seizing" always can be traced to a failure of the lubricant to keep metal surfaces adequately separated by a film of oil. Either the oil may be too thin, or the pressure between the surfaces too great, or there may be no lubricant there at all. The last will be a matter of rank carelessness or a failure of the lubricating system; in either case it

is outside the limits of this paper. When the two surfaces come into close contact under considerable pressure much work has to be done to get one to slide over the other. The heat thus produced raises the temperature of the bearing, and the molecules of metal of the two surfaces spurred into great activity by the rise of temperature diffuse from the shaft into the brasses or bushes, and from the piston into the cylinder wall and vice versa. This tendency to diffuse or weld is so great that when two metals with carefully cleaned and polished surfaces are very strongly pressed together and left for several weeks at the atmospheric temperature, molecules are found diffused throughout the other.

Scoring and seizing are facilitated by high temperature, high pressure, and close fitting; a close fit at a low temperature becomes a much closer fit at a high temperature. Hence, the principal features that a suitable lubricant should possess are arrived at—it must withstand the maximum pressure and the maximum temperature which it will have to meet, and preserve as far as possible an unbroken film between the sliding surfaces.

The variety of substances added to a lubricant for one purpose or another is very great. Each has its use—some improve, others do the reverse. There is a material here variously known as a "thickener," "viscom," etc., intended to be added to a thin oil to increase its viscosity. It consists of cotton seed or other vegetable oil saponified with alkali and the resulting soap precipitated by alum. Ordinary soap is sometimes added to a lubricant; it imparts body and gives a fine sparkling appearance, but it is quite unfit—indeed harmful—for lubrication. Water, although not exactly an adulterant, is often found in a badly prepared lubricant; it causes great trouble, especially in cylinders, and particularly if vegetable oils are also present. Another adulterant added to improve the viscosity of a poor oil is india rubber, it is said to prevent the tendency of an oil to gum on the bearings, but imagine its effect if it gets into the combustion chamber by mistake.

The point, however, of greatest interest is whether to countenance the addition to the mineral oil of vegetable oils, such as cotton seed, rape seed, or olive oil; or of animal fats, such as lard, tallow, neatsfoot oil, or sperm oil. In their favor it may be said that they have a very low setting or solidifying point, and when heated thin much less rapidly than do mineral oils of a similar viscosity. Further, they are more resistant to high pressures, hence their use under certain conditions for heavy steam and gas engines. The following are a few arguments against the use of vegetable oils, even in small quantities. They all develop acidity, particularly at high temperatures, which has a corrosive action on metals. They nearly all absorb oxygen from the atmosphere, and thicken or gum on the bearings. At a high temperature such as might be met in an air-cooled cylinder the fatty mat-

ter would be burnt into a tarry deposit, while a mineral oil at the same temperature would be merely volatilised and swept out of the cylinder with the exhaust gases. It is, of course, possible that with the cylinder running cool, the temperature at which the vegetable portion will be decomposed is not reached.

The first effect of heat on a lubricant is to considerably reduce its viscosity. The temperature of the cylinder wall in an air-cooled engine averages from 250 deg. to 300 deg. Fah., and in a water-cooled engine from 180 deg. to 250 deg. Fah. At the higher of these temperatures the lubricant is about as thin as water or kerosene and splashes just as readily. If there be an adequate supply, even in this state, it is capable of preserving a good film between piston and cylinder, and it is not till temperatures of 400 deg. up to 500 deg. Fah. are reached that danger arises. Unless copious supplies are pumped in to make up the loss by evaporation the piston will seize. With a well-refined pure oil, 99 parts in a 100, say, evaporate and do no damage; the one part is carbonized—that is to say, decomposed by the heat. It is solid matter in a very fine state of division; a portion of it will go out of the exhaust with the gases, the rest will be deposited on the walls of the combustion chamber and on top of the piston. In the case of the oil containing notable quantities of impurities, the proportion carbonized is very much greater, and the deposit in the cylinder head grows more rapidly.

There is another and a very prolific cause for this deposit, and that is, defective carburation. Either an over rich or a not sufficiently sprayed and vaporized mixture will cause a carbon deposit to form. In practically every case these deposits are the cause of pre-ignition, and in many cases of overheating. There are few worse conductors of heat than carbon, and a thin film will work wonders in keeping the heat in. The lubricant is always at the same temperature as the cylinder wall, and it is this factor which governs the choice of an oil.

The size of a cylinder is of some account, because a big cylinder means a big piston and a correspondingly heavy pressure between them. If an abnormal piston speed, either very fast or very slow, is employed, that must be taken into account, but, as a rule, piston speed need not be considered, so the question narrows down to cylinder temperature as the chief question to be studied. With an efficiently water-cooled engine, an oil of moderate viscosity and volatility can be used; in fact, a good quality of gas engine oil will frequently serve. But it is necessary to discriminate between a single-cylinder and four or six cylinders; the latter engine, with its smaller and cooler cylinders, less pressure on crank pins and shaft and higher average speed of running, is best served by a thinner lubricant than the slower speed single-cylinder engine.

To sum up, the chief properties which the proper lubricant should possess are, first,

sufficient body or viscosity to prevent the surfaces it is intended to lubricate from rubbing together or coming into actual metallic contact at their maximum pressure and temperature. Second, the greatest fluidity consistent with the required viscosity; third, freedom from change through atmospheric influences as well as from fatty or mineral acids likely to corrode the surfaces of the metal. Fourth, a high "flash point" or temperature of vaporisation and decomposition and a low freezing or "setting" point. That it should be free from grit, water or other foreign substances goes without saying.

To ascertain whether a certain sample of oil meets the requirements that it should have in order to be used for a certain purpose such as for the motor cylinder, it is subjected to a number of tests. Its flash point and ignition point are tested at the same time, the first representing the temperature to which the oil can be heated before it gives off an inflammable vapor and the second, the temperature at which it will actually take fire. If the specimen under test happens to be a compound consisting of light and heavy oils or a proportion of more volatile oil, this test is apt to be misleading as the light portion takes fire much sooner and ignites the remainder, before it would otherwise burn. In order to ascertain the volatility of an oil, it is usually exposed in a shallow open pan for twelve to twenty-four hours at a temperature of 200 to 250 degrees Fahrenheit, the amount of loss by evaporation determining its quality in this respect.

To ascertain its freezing or "setting" point, the sample is slowly cooled by a freezing mixture and the temperature at which paraffine or other solid hydrocarbon is deposited is noted. In many cases no precipitation whatever occurs so that the point at which the whole mass solidifies marks the only observation to be taken. The presence of acids is also tested for and whether due to mineral acids—evidence of bad refining—or to fatty acids which show the existence of fixed oils in the sample. The latter is heated with a solution of caustic soda or potash in dilute alcohol which renders the fatty oil soluble. It can then be washed out with water and its percentage obtained, or from the mineral oil which is not acted upon by the alkali, can be extracted from the mixture with the aid of gasoline and weighed to see whether it has lost weight or not. The spreading power of a lubricant is tested by placing equal drops of it between polished glass or steel surfaces heated from 250 to 300 degrees Fahrenheit. Gumming and oxidation tests conclude the series and, as their names indicate, are to determine the absorption of oxygen or exposure, and the extent of the formation of gum, as a good mineral oil, even on long exposure, absorbs very little oxygen and remains practically unchanged, while all fixed oils change more or less quickly under these conditions and the change is hastened by warming.

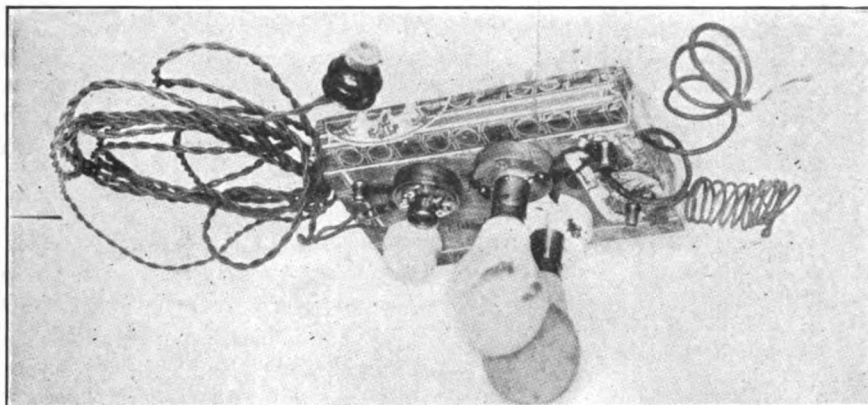
PORTABLE CHARGING OUTFIT

Simple Apparatus that Renders Touring with Accumulators Free of Apprehension.

Despite its unquestionable efficiency as a source of ignition current, the comparatively short life and sudden "death" of the charge in the accumulator, serves as a great drawback to its utility upon the touring car. It yields a strong current, supplying the motor with a hot fat spark, and is to be relied upon invariably—up to a certain

breakage. The charging is intended to be done from an ordinary lighting fixture in the owner's room at night or whenever a lay-up provides the requisite time, and thus, granted only the availability of electrically lighted hotels, the charging difficulty may well be considered to be vanquished.

Considering the apparatus itself since the method of construction is perfectly obvious from the illustrations, and further, need conform to no set rule, the only need of special description is in relation to the method of making connections. This is

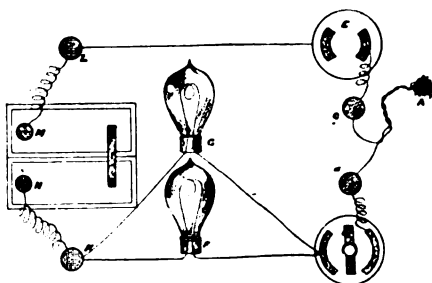


THE OUTFIT COMPLETE.

point, when it gives out with a suddenness that leaves the improvident tourist in a most unpleasant predicament in instances which are all too frequent. Probably it is this drawback alone which has prevented it from receiving in this country the usage which it has on the Continent and in England, a fact which is not wholly the fault of the apparatus itself, but rather is due largely to the preference of the user. That a degree of independence from fully equipped garages and charging stations is possible when touring with an accumulator-fed ignition system, which closely approaches that attained where dry cells are used, is quite readily possible, however, is evident from the following description of a home-made charging outfit which was recently detailed in the "Car."

The materials composing this touring outfit rather than being of an expensive and cumbersome nature, consist of the simplest fittings possible, and the cost of the apparatus itself may well be conceived to amount to hardly more than a dollar. The base, or charging board proper, consists of nothing more formidable than a common cigar box upon which are mounted a switch and fuse plug together with a couple of incandescent lamp sockets together with the line current and charging terminals. By proper contrivance, it is possible to make the cover reversible so that in transit, the fixtures may lie within its enclosure, and, by the same token, the lamp resistances and terminal wires may be packed away within, making a neat and handy package taking up but little space in the car, and being reasonably safe from

shown by the diagram, in which it is made plain that the lead from the lamp socket A, whence the charging current is to be taken is divided at the box, one terminal B being taken to the cut-out switch, and the other to the local fuse E, which, in turn, is connected to the charging terminal L, where a binding post permits of readily making connections with the accumulator.



HOW THE LAMPS ARE CONNECTED IN THE CIRCUIT.

The two lamp sockets F and G, are connected in parallel, that is to say, each is connected with both the switch and the second charging post K, from which the current is led to the accumulator through the terminal N.

For general touring, two sets of lamps should be carried, designed to take current at 110 and 220 volts respectively, and, of course, a pair of 16 c. p. and a pair of 32 c. p. lamps should comprise each set, making in all, eight lamps. In many instances, however, the lamps will not be necessary, since one or two can be borrowed for the occasion from the hotel keeper or storekeeper where the current is obtained. Care should be taken in every case to ascertain

the voltage used, and also before coupling on the accumulators, whether the current is direct or alternating. If direct, well and good; if not, unless some sort of rectifier is available, the proceedings must be postponed indefinitely.

Supposing, however, the current is found to be direct, as may most readily be done by a slip of pole finding paper, and by the same token, the polarity of the terminals determined, the apparatus may then be connected up, care being taken to join the two positive poles together, or, in other words, to connect together the two sets of poles giving the same reaction with the test paper. In the beginning, if a 110 volt circuit is used, either one 32 candlepower lamp or two of 16 candlepower should be placed in the resistance sockets, thus reducing the current through the accumulators to a fraction over an ampere at 5 or 6 volts pressure. The pressure of the accumulator should then be tested from time to time until it has risen to its standard of 4 volts and a little over—the charging circuit being opened for the time being, of course—when the apparatus may be packed up and stored away in the car once more.

By the use of some such device, it is possible to keep accumulator constantly charged while on the road, and thus to derive the benefit of the excellent ignition which it secures without the annoying worry as to just when and where the supply of "juice" is going to give out. Of course, there are to be had on the market, regular charging outfits which are designed for this especial purpose, and which save the annoyance of having to make all the connections. Either of these arrangements, together with a good portable voltmeter and a coil of fuse wire are all that is required to place the storage cell on an even footing with the dry battery for touring. The region of electrically lighted towns can hardly be abandoned, to-day, except in very remote localities, and even then, a ride of a day or two, well within the powers of the fully charged cells, will take the traveler to some point where he can find the desired source of supply.

"Animals" the Automobile is Replacing.

Giraffes, camels, horses of weird mein and the other queer-looking quadrupeds that have from time immemorial adorned the circular platform of the merry-go-round are giving away to the automobile. But, barring the same gaudy colors with which the animals were always finished, there has been more of an attempt at realism in using the car for this purpose. Instead of employing "property" fittings the accessory dealer has been called upon and as a result these circulating cars have real bonnets and headlights, genuine steering wheels and registration numbers and the regulation car wheels shod with pneumatic tires, although the latter do not work as the car really runs on small iron wheels, which, like its lack of "insides," are out of sight.

GERMANS BEGIN IMITATING

Influx of Air-Cooled Cars Showing the "Borrowing" of American Ideas.

"Piccolo" is the appropriate title of what appears to be the first attempt to produce a four-cylinder air-cooled car on the Continent, and it is one of several cars of this kind now being brought out on the other side that demonstrate very conclusively how closely foreign builders have been following the success that has rewarded the efforts of the American designer in that direction. So far as novelty is concerned, air-cooling is certainly nothing new abroad, but it has never been tried on anything but the most insignificant scale—usually single cylinder cars not much larger than a motorcycle, and has always been regarded in the light of a freak idea of the class that would not down, but that would never amount to anything.

"The Piccolo car is of German origin and is hailed as the first of its kind by the German press, with the statement that "What has been so often predicted and so long in coming has finally arrived." The frame is of stamped U-section and is supported on the usual running gear with long semi-elliptic springs front and rear. The motor is of the four-cylinder type with the cylinders placed tandem, and having their surfaces corrugated in a peculiar manner to assist radiation, though just what this consists of does not appear. The engine as a unit, is covered with an air-jacket through which circulation is insured by means of a blower placed at the forward end of the motor—in short, a German adoption of the Frayer-Miller system that has made such a name for itself. The inlet and the exhaust valves of each cylinder protrude through a common opening in the casing and the motor is said to run so cool that it may be left standing indefinitely without danger of overheating. The dimensions of the cylinders are 80 by 80 millimetres or 3.15 inches "square," and these diminutive dimensions are carried out in every part of the car giving it a peculiarly undersized and toylike appearance as if its builders had feared to experiment with air-cooling on any larger scale. Its aspect is that of a very light runabout to which a touring body has been added. A two-cylinder model is also being turned out, this merely having half the same engine as the larger car.

The "Perl" voiturette is another imitator of the Frayer-Miller idea that was shown for the first time at the Vienna exhibition a few weeks since. At first glance it might be mistaken for an American car of the make in question, but for the fact that it has only two cylinders and the air jackets while of identically the same type are not carried as far down toward the base of the cylinders. The two cylinder motor is

placed tandem as usual and is rated at 10-12 horsepower. The blower is placed at the forward end of the engine and this as well as the casing is of aluminum. Instead of being carried down around the cylinders vertically, the jackets are cut off at an angle of 45 degrees so as to expose the under side of the valves and large tubes from the main outlet of the blower, lying horizontally along the tops of the cylinders, deflect the current of air downward at an angle so that it issues around the valves.

A third entrant into the air-cooled field is also a 10 horsepower runabout but does not appear to promise as well as its contemporaries. It differs from them in not adopting the blower idea at all, depending entirely upon the cast flanges of the cylinders, supplemented by a high-speed fan at the rear end of the engine, to do the cooling. Its designers have apparently worked upon the principle that it is more effective to draw the hot air away from the motor than to blow cold air upon it. The operation of the fan is facilitated by providing a cover for the engine and the latter is of such a form that it prevents the hot air from "pocketing" between the two cylinders, collecting round them or conveying the heat from one to another. The inlet valves are of the automatic type and are located directly in the center of the cylinder head, while the exhaust valves are placed in pockets at the side that are almost as large as the cylinders themselves.

Departure in Cut-Out Switch.

Cut out switches for testing the ignition of each cylinder in turn have become such a standard feature of the up-to-date engine as to be regarded in the light of an absolute necessity. To accomplish this the switch is so wired up that opening it merely drops the cylinder to which it is attached out of the circuit. But the coil is still permitted to operate and as the gap made by the opening the switch is too great for the spark to bridge it is apt to be damaged as the result. To avoid this the makers of the Pognon plugs have just brought out a spark plug switch which reverses the usual order of affairs by merely short circuiting the cylinder that is cut out. The device is attached to the body of the spark plug by a brass strap just above where it enters the cylinder and consists of a short pivoted lever and brass knob on the end of it which is brought in contact with a similar upright when in operation. As the high tension current is then provided with a direct return path without any gaps, all danger of overburdening the coil windings is eliminated. The procedure followed in testing the cylinders is, of course, the same. Three are short circuited while the fourth is run under inspection.

The Syracuse Automobile Livery Company has been formed. Cars will be rented day and night, an innovation in the up-State town.

GRAFTERS WALKED HOME

How two of them Overworked an old Game Very Much to their Sorrow.

Ingenious youths and a few old enough to know better, who have been working Chicago salesmen and agents for free rides on Sunday, by representing themselves to be prospective purchasers of cars, will learn something by a perusal of the narrative regarding the experience of two of their ilk, recently.

On Saturday afternoon a pleasant voiced young man called up E. Q. Cordner, manager of the Rainier Company's branch, stating that a friend, who is a physician on the south side, wished to purchase a touring car. The doctor, of course, was too busy to investigate the merits of the machines for himself and had placed the matter of selection with the speaker and another friend, who is a mechanical expert, the pleasant voiced young man explained to Manager Cordner. He further asked for a demonstration on Sunday and as he seemed so earnest about a quick delivery, Manager Cordner strained a point and promised to take them for a Sunday ride in Indiana.

Meeting them as he had promised, the trip was made, but Mr. Cordner's suspicions were aroused and he became convinced that he was entertaining a pair of grafters. This thought was strengthened when, after various excuses, he stopped occasionally to call up the physician, whom he was unable to reach by telephone. Continued assurances of the fraudulent representation of his passengers kept manifesting themselves, and finally the Rainier driver brought the matter to an issue.

"I am convinced," he said while the car was at a standstill at Crown Point, Ind., "that you fellows are not on the level. Now it is up to you to square yourselves by communicating with your alleged friend, the doctor, or pay me for the trip out from home." The third alternative is to walk home." The passengers were on the ground making a pretense at examining the car. They tried to "bluff" but their story did not hang together well enough to satisfy the driver. "Well," he said at last, "what is your answer?"

"I guess it is up to us to walk home," replied one of the grafters, and Mr. Cordner was as good as his word, for he immediately turned on the power and left his erstwhile passengers standing by the roadside, five miles from the nearest railway station and forty-five miles from home.

Since the incident it has been discovered that the young men have been grafting on "Automobile Row," ever since spring weather opened and the salesmen and agents are hoping that their last experience will teach them and others of their ilk a much needed lesson.

TO REDUCE THE DUST

Outcome of Experiments in Switzerland and France—Tar Gives Best Results.

"The processes under consideration are oiling, watering with deliquescent salts, and tarring," says Consul McNally, of Liege, in describing the methods being employed by the Swiss Anti-Dust League in its war on the principles of dust composition. "The first consists in spreading upon a well-swept road a heavy oil obtained from distilled petroleum. During a dry and warm period the spreading process is done with a brush. These oils are obtained in California, Galicia, and Baku, and cost from \$5 to \$6 a barrel.

"Watering with such salts as chloride of calcium would give appreciable results were it not for the ophthalmic effect on the eyes. Products of this kind are rapidite, westrumite, apulvite, basilit, odoreol, and pulveranto. At the automobile exposition in Paris a block of macadam could be seen amalgamated with rapidite, giving to the mass an idea of great compactness.

"For tarring the product used is coal tar, the product of gas works. It is black and viscous and its density varies from 1.10 to 1.25. It can be applied hot or cold. Its boiling point varies between 70° and 80°, C., and thereafter it is impossible to raise it to a higher temperature. The spreading with watering pots must be done during a warm and dry period. The road, which has been thoroughly cleaned before the application of the tar, must then be carefully and gently brushed and traffic must be suspended over it for at least twenty-four hours. The quality of tar preferable for lasting use is the product from gas made by carburated water.

"It is said that these three antidust processes have given general satisfaction, and the numerous trials made under the supervision of the league in Switzerland demonstrate that the tar obtained as above is the most efficacious of anything heretofore tried. The league urges frequent and substantial demonstrations of dust-settling processes, and estimates the cost to be but nominal. The French Government, after a four years' trial of the tarring method, have obtained satisfactory results fully justifying the expense of from 2½ to 3 cents per square yard. The annual economy on the wear and tear is found to be about 2 cents a square yard, and for watering, 1 cent per square yard, so that the process of tarring is of no expense while its benefits are evident."

Accident with Unusual Outcome.

Generally, the motorist who has the misfortune to run into or over a pedestrian, expects on dismounting, to find him either dead, or ready to commit murder. That there are exceptions to this, as all rules, however, is proved by the experience of a British motorist who, driving along one of

the principal streets of Wolverhampton, was much alarmed to see a small boy suddenly dart out from behind a wagon standing by the curb and run squarely in front of his car. There was a howl, and the youngster disappeared from view beneath the machine as it was brought to an abrupt halt. The driver descended expecting to find the scattered remains of the boy horribly mangled, but instead, beheld him scampering away as fast as his legs could carry him, and yelling at the top of his lungs, "Don't hit me, mister, I won't do it again." When he was caught it was found that one of his arms was broken, but that otherwise he was unscathed.

American Car Scores in New Zealand.

The American product is beginning to make its quality felt in foreign fields. The most recent evidence of the fact is contained in the following letter to the Cadillac Company, from Dexter & Crozier, their Auckland, New Zealand, representatives, as follows:

"It will no doubt be very gratifying to you to know that the model "B" single cylinder Cadillac driven by Mr. Crozier, made a non-stop run, secured full points and tied for the cup with 12 and 15 horsepower Darracqs for the North Island Reliability Test of New Zealand.

"The test was a four days' run to the Hot Lakes District and back again, covering some very hilly and sandy districts. The test was divided into three classes, A, B, C. Class A, cars up to 8 horsepower; class B, cars from 8 to 12 horsepower; class C, cars from 12 horsepower and up.

"The Cadillac was the only car carrying a full load of four passengers securing full points and the total distance of 409 miles was done with only 19¼ gallons of gasoline consumption. This, considering that the roads were of a very hilly and sandy nature, makes a very creditable performance."

To Instruct the British Soldiers.

It is reported that the British War Office has under consideration a proposition to organize a series of classes for the instruction of the soldiery in automobile manipulation. One method suggested is that men in their last year of service shall be given regular instruction in the art. The obvious inference, of course, is that the War Office attaches a good deal of importance to the automobile movement, and appreciates the advantage which would accrue in time of invasion, from having at hand a body of available material which could be mobilized and employed in the handling of vast bodies of troops and supplies by means of self-propelled vehicles.

Here after all automobiles used in Germany will be taken 10 marks per horsepower. This law was passed by the Reichstag last week. A motion of the radical party to exempt from taxation all automobiles used for commercial and industrial purposes was rejected.

REGULATING THE TOURIST

Requirements Laid Down by France—Advantages Afforded by "Le Triptyque."

"An automobile vehicle imported into France, for whatever purpose, is subject to a specific duty, which varies according to the nature of the motor, whether steam, electric, or hydrocarbin, and also whether the country from which it comes is or is not entitled by treaty to the minimum tariff on imports into this country," writes Consul-General Frank H. Mason, from Paris to the Department of Commerce and Labor at Washington, in an endeavor to simplify for tourists who go to France either with their own automobiles or with the intention of buying or hiring a car in Paris for a tour through the continent, the annoying and somewhat confusing red-tape customs regulations in vogue on the other side.

"America, unfortunately, has no such treaty, and therefore motor vehicles originally made in the United States are subject to the general or maximum tariff rate, viz.: Automobiles, for persons, weighing 275 pounds or more, \$11.58 per 220 pounds; motor bicycles, etc., weighing less than 275 pounds, \$28.95 per 220 pounds. Electric automobiles are taxed as above on the vehicle and motor, and \$4.14 per 220 pounds on the accumulators which they carry. When imported for touring or other temporary purpose, the duty so paid on a motor vehicle will be refunded at the frontier when the vehicle leaves France, on presentation of the receipt given by the customs officer at the port of entry.

"As a means of avoiding the payment of this deposit at the frontier, many Americans and other foreigners avail themselves of the special privileges of the Touring Club de France, a powerful organization founded in 1890, which has now nearly 100,000 members, and central headquarters at No. 65, Avenue de la Grande Armee, Paris. A foreign member of the club, wishing to make a tour with his automobile in France, may obtain from its central office a permit for the temporary importation of his machine. The application for this permission is made on a prescribed form, accompanied by a deposit of the amount of duty, and the permit is at once issued under its authority, the club becoming, so to speak, responsible for its member during his sojourn in France. This license for free international circulation is known as 'Le Triptyque,' being printed on three leaves or sections, each bearing the same serial number. The first leaf is detached for the customs officials at the point of final departure of the car from France, and the third section is retained by the member to be presented finally, personally or by mail, to the touring club, whereupon his deposit is refunded at once without the delay and inconvenience which so

often attend repayment of such a deposit at the custom-house.

"Among the other advantages of the 'Triptyque' for an American is that he can obtain by it correspondence in advance, and then on landing he is enabled to pass the custom-house at once with his auto without annoyance or payment of money.

"In France, Germany and Belgium the 'Triptyque' is valid for a period of one year from its date; in Italy and Switzerland for six months only. During the period of such validity the holder of a 'Triptyque' may make any desired number of trips into and out of the country designated, unless it be Germany, where only one voyage during the year is permitted. The 'Triptyque' is not recognized in Spain or Austria, and is not necessary in Holland or Great Britain.

"Having secured the admission of his car and the permission to have it placed in circulation, the next important step for the visiting motor tourist should be to obtain a 'Certificate de capacite,' or license to drive an automobile in France. Theoretically, this is made somewhat easier for foreigners than for a native of the country, but this courtesy which seems so gracious at the outset, is no protection against the results of ignorance or incapacity, and it is therefore advisable that every American who desires to traverse this country with an automobile, either imported or purchased here, should take the full examination and so qualify himself as to be entitled to all the rights and privileges that a certificate of capacity can secure.

"An application for a license or 'permit de conduire' should be written on a sheet of stamped paper of the denomination of 60 centimes (about 12 cents). It should be addressed to the prefect of police, give the full name and address of the applicant, and embody in simple, direct form a request to be permitted to pass the examination required to obtain a certificate of capacity to drive an automobile weighing — kilograms, with a petroleum motor, and of the system — (giving the name of the maker). With this letter of application should be inclosed the passport of the applicant (viseed by an American consul in France if issued from any other office than the American embassy at Paris) and his birth certificate, or, if that is not available, a police certificate which is issued from the prefecture of the police, 36 Quai des Orfèvres, called a 'registre d'immunité.' If the applicant is a resident of France he should likewise inclose with his application a certificate of residence from the commissary of police in the precinct where he resides, attested for identity by two witnesses, and finally two unmounted photographs of himself.

"Within a fortnight the applicant should receive an official letter requesting him to meet the examiner at a designated time and place, to which he should go in an automobile of the same type as the one described in his application. This examination is a practical one on broad lines laid

down in a circular of the minister of public works. The candidate must manœuvre the machine in the presence of the examiner (an engineer of the mines department or his delegate). The examiner is directed to pay special attention to the prudence, coolness and presence of mind of the candidate; his judgment of distance, steadiness in steering, ability in changing, as occasion may require; the speed of the vehicle, application of brakes and starting again, and his general ideas about traffic in street and road so far as appreciating the requirements of other vehicles in passing, preceding, following, and crossing. Where steam is the motive power the examination varies somewhat and some theoretical knowledge is necessary.

"If the trial is satisfactory and shows the applicant to be capable of managing his machine acceptably, the examiner will generally give him at once a temporary license authorizing him to drive in and about Paris until the permanent 'permis de conduire' is issued, which latter is good for the whole of France. This certificate and receipt of declaration describing the car should always be carried by the automobilist when traveling in his automobile, as they may be called for at any moment, and failure to produce them might subject the delinquent to serious embarrassments.

"If the automobile is capable of a speed exceeding 30 kilometers (approximately 18 miles) an hour, it must bear in front and rear a tag painted in white on a black ground, and showing its number and the distinctive letter which has been given to the machine to indicate the place or district headquarters where it has been registered. The dimensions of these letters and figures are carefully prescribed by law and regulations. The tags must be so placed as to be clearly visible, and the rear one so illuminated at night by a reflecting light as to be read as easily as by day. The rear tag may be replaced at night by a lighted lantern bearing the number and letter of the vehicle.

"The speed of an automobile in France is limited by governmental decree to 30 kilometres (18 miles) an hour in open country, and 20 kilometres (or 12 miles) an hour in cities and towns. Any speed exceeding this, although it may be leniently considered by the police, is contrary to law and, in case of accident resulting from the excessive pace, liable to get the offender into serious trouble.

"In case of accidents on the road it is of the highest importance that the foreign automobilist should control his temper and preserve the courtesy of bearing toward officials and other persons, for the lack of which nothing atones in France. If another person has been the cause of or in any way concerned in the accident, his name and address, together with those of any witnesses present, should be obtained and written down, the automobilist giving in return his own.

"In case indemnity is voluntarily paid for

an injury, either real or imaginary, a receipt should be taken, showing that the payment involves full immunity from subsequent proceedings of any kind. Finally, if signalled to stop by a policeman or other official, the tourist should always obey, treat the delay as good-naturedly as possible, and if summoned to appear before a court he should never fail to do so, either in person or by attorney.

"When an American lives in Paris or elsewhere in France an automobile for the purpose of making a tour in this or adjoining countries, and when (as is usually the case) the person or firm furnishing the vehicle supplies also a chauffeur, a carefully drawn contract should be made and signed to define clearly the responsibilities of both parties. As this contract may afterwards become the basis of proceedings before a French court it should be written on stamped paper and cover every point that may be likely to come into dispute."

These Witnesses were Tall Swearers.

That American "cornstubble" who in all seriousness swore that the speed of the car whose driver he had apprehended was 200 miles an hour, has more than found his match on the other side. A motorist had been summoned in an English rural court for overspeeding and the testimony of the various witnesses was amusing to say the least. One of the estimates was 60 miles an hour, but when asked the distance covered and the time consumed, the figures given by the witness worked out at 15 miles an hour. Another was quite certain that the car passed him at the rate of 80 miles an hour, but was equally certain that he could read the number.

Two witnesses who evidently did not wish to be ridiculed for going too far wide of the mark, dropped to "forty to fifty" and "forty-five to fifty miles an hour." It was the last named who proved to be the star witness of the occasion, for upon cross examination, he testified that the car was in sight about a quarter of a mile and had appeared and disappeared in from one to two seconds. Putting the most liberal interpretation upon this by adopting the wider estimate of two seconds, it works out at 450 miles an hour. Notwithstanding the hopelessly contradictory nature of the evidence as well as the fact that it was wholly unsupported, it cost the motorist a fine and costs which together totalled \$40.

Kansas City's "Mileage Fiends."

The Kansas City Automobile Club has two feminine members who are mileage "fiends." Mrs. Mary Dickerson holds the club record for 1905-06. Beginning June 24 last, to the present time, she has traveled more than 8,900 miles in her Pierce car. During the year her only expense, she maintains, was for tire covers, amounting to \$40. Mrs. Victor Bell, who drives a Stevens-Duryea, holds second place with a record of 8,000 miles.

The Week's Patents.

820,041. Means for Actuating Signals. Anthony B. Ferdinand, Milwaukee, Wis. Filed Sept. 8, 1903. Serial No. 172,192.

Claim.—1. The combination with a wheel having an inflatable tire, of signal mechanism associated with said tire, a casing projected into said tire and forming a part of said signal mechanism, and a rod mounted in said casing and adapted to be actuated by said tire when the latter is partially deflated to render the signal mechanism operative.

820,059. Folding Vehicle-Top. Richard B. Miles, Indianapolis, Ind. Filed Aug. 18, 1905. Serial No. 274,661.

Claim.—1. A vehicle-top including a pivoted main bow having two pairs of spreader-bars pivotally supported thereby, with two contractible bows pivoted to the main bow and also to the pairs of spreader-bows.

820,077. Vehicle-Wheel. George S. Whiteley, Baltimore, Md. Filed May 3, 1905. Serial No. 263,146.

Claim.—1. A vehicle-wheel consisting of a central wheel having spokes and felly, a channel-iron rim distant from the inner one and a series of S-shaped springs interposed and having their ends secured to both rims with bolts and nuts, and rubber-cap cushions over said nuts, substantially as described.

820,102. Automobile. Charles W. Duer, Chicago, Ill. Filed Oct. 23, 1905. Serial No. 283,873.

Claim.—1. In an automobile, the combination of a transverse driving-shaft, means for driving it, pulleys upon the driving-shaft, a rear or traction axle and traction-wheels thereon, pulleys on the traction-wheels registering with the pulleys on the driving-shaft, belts connecting the pulleys on the wheels and shaft, self-adjusting brake-shoes registering with the tires of the traction-wheels, and means for causing relative movement of the shaft and axle in parallelism and simultaneously of the brake-shoes and traction-wheels toward and from each other, to slacken the belts and apply the brakes, or to tighten the brakes or disengage the belts.

820,104. Pneumatic Tire. Percy W. Fawcett and Edward L. W. Bellhouse, Sheffield, England. Filed Oct. 25, 1904. Serial No. 229,950.

Claim.—A flexible metallic tread for pneumatic tires of wheels consisting of a plurality of sections, each section having a central tongue at one end and a corresponding recess at its other end and recesses on each side of the central recess on the upper side of the section and overhanging portions at its other end on each side of the tongue, the tongues and overhanging portions engaging the corresponding recesses in the adjacent sections.

820,110. Means for Repairing Punctures in Pneumatic Tires. Harry Harrison, Erdington, England. Filed Oct. 4, 1904. Serial No. 227,150.

Claim.—An appliance for closing a puncture in an air-tube of a pneumatic tire, consisting essentially of two metal or other suitable disks with means for pressing and securing them together, one of said disks having a slot to facilitate its being passed through the puncture into the interior of the air-tube, substantially as set forth.

820,122. Power Transmission. George Morrice and Charles G. Grim, Sonora, Cal. Filed Feb. 10, 1905. Serial No. 245,155.

Claim.—The combination of an engine-shaft, a gear loose on said shaft and having a member of a clutch, a female clutch member slidable on the shaft and adapted to engage the clutch member of the loose gear said shaft having a central passage-way, a rod slidably mounted in said passage way of the shaft, and provided with a cross-piece, a screw in line with the rod and made separate therefrom and bearing endwise thereon, and means for adjusting the screw, said slidable clutch member having an integral flange for housing the ends of the cross-piece.

820,179. Mechanism for Connecting Vehicle Axles and Bodies. John F. Byers, Ravenna, Ohio; Kate Byers administratrix of said John F. Byers, deceased. Filed Dec. 26, 1903. Serial No. 186,616.

Claim.—1. The combination with the side rails of the body-frame, and the driving-axle, of oppositely-positioned springs having their upper members secured to the body-frame, equalizers pivotally mounted on the axle and formed with oppositely-extending radial arms, connecting-rods at one side of the springs, and having their lower ends pivotally connected to the ends of the upper arms of the equalizers and their upper ends pivotally secured to the side bars of the body-frame, connecting-rods pivoted to the ends of the lower arms of the equalizers and to said body portion in different horizontal plane, and rigidly-depending arms secured to the side rails and their lower ends pivotally secured to the upper end of the second set of connecting-rods.

820,185. Tool. John W. Edmands, Newton Center, Mass. Filed Aug. 4, 1904. Serial No. 219,573.

Claim.—1. A wrench comprising a holding member provided with means for twisting or turning it axially, a head or socket member provided with a nut-engaging portion, and means for connecting said holding member and head or socket member, comprising a pair of ears connected to one of said members, a lug connected to the other of said members and adapted to fit between the ears of the other member, a pivot-pin secured to one of said members, and an open-sided eye formed in the other member and adapted to detachably engage said pivot-pin, to thereby pivotally connect said holding member and socket member, whereby said socket member may be rotated axially in any of a plurality of selected positions by the twisting or turning of the holding member, and the socket member readily detached from the holding member.

820,219. Chain. Christopher W. Levalley, Milwaukee, Wis. Filed July 19, 1905. Serial No. 270,403.

Claim.—1. A chain composed of links connected by cross-bars, each link having a tubular end bar and perforated side bars, whereby are formed pintle-seats, and the side bars of the links being composite and formed of metal of different qualities, substantially as and for the purpose set forth.

820,220. Set-Collar for Shafts. Christopher W. Levalley, Milwaukee, Wis. Filed Dec. 13, 1905. Serial No. 291,597.

Claim.—1. A set-collar comprising a pair of rings internally shaped to fit the shaft to which the collar is applied, these rings being spaced apart, and a series of spoke-like connecting parts arranged.

820,222. Internal-Combustion Engine. D. McRae Livingston, New York, N. Y. Filed May 12, 1904. Serial No. 207,531.

Claim.—1. An internal combustion engine having a power cylinder and piston and

means forming a compressor communicating with the power-cylinder and operating in unison with the power-piston, said compressor having ports leading into the compressor-chamber at opposite points therein and respectively serving to introduce the combustible mixture and scavenger-air whereby to maintain said elements in stratification in the compressor-chamber and to discharge said elements in said relation to the power-cylinder.

820,230. Intake-Valve for Explosive-Engines. Albert C. Menges, Grand Rapids, Mich., assignor to William Harrison, Grand Rapids, Mich. Filed Sept. 14, 1904. Serial No. 224,457.

Claim.—1. In a valve for explosive-engines, the combination of the valve and the valve-stem, a casing formed of a lower section and an upper section rotatable thereon, the lower section provided with beveled projections and the upper section openings having inclined sides adapted to engage with the projections as the upper section is rotated for the purpose of lengthening or shortening the throw of the valve.

820,239. Augustus L. Moss, Sandusky, Ohio. Filed March 17, 1905. Serial No. 250,523.

Claim.—1. An explosion turbine comprising a cylinder, a turbine-wheel mounted to turn in said cylinder and provided with peripheral buckets, an explosion-chamber having a discharge-nozzle for discharging a motive against the buckets in the direction of rotation of the turbine-wheel, a piston in said explosion-chamber, operating means for the piston controlled from said turbine wheel for drawing in an explosive charge and for compressing the same previous to ignition, and means operated by the piston-operating means for locking the piston during the explosion period.

820,239. Valve. Augustus L. Moss, Sandusky, Ohio. Filed Feb. 6, 1906. Serial No. 299,715.

Claim.—1. A valve comprising a valve-casing having an inlet for connection with a pressure-supply and an outlet for the discharge of the fluid-pressure, a valve-seat in the said valve-casing between the inlet and outlet, the said valve-seat having an opening and an annular groove, a bearing on the said valve-casing, a valve-disk having a stem engaging the said bearing, the valve-disk having an annular groove in the said bearing, the said valve-disk having an annular groove registering with the said valve-seat groove, a rubber gasket fitting the said registering grooves, and a spring pressing the said valve-disk.

820,251. Corner-Support for Vehicles. William G. Persing, Braman, Okla. Filed Sept. 18, 1905. Serial No. 279,032.

Claim.—As a new article of manufacture a corner for vehicle-bodies consisting of two L-shaped plates vertically disposed and spaced apart and connected by an integral web at their elbow portions and forming vertical recesses for the terminals of the sides and end members of the body open at the ends and extending the whole width of said side and end members, and L-shaped clamp-plates horizontally disposed and integral with the inner vertical L-shaped plate, one of said horizontal plates flush with the bottoms of said vertical plates for bearing beneath the floor member of the vehicle-body and the other of said horizontal plates spaced from the first-mentioned horizontal plate for bearing above said floor member.

820,278. Cooling Device for Engine-Cylinders. Lewis D. Zent, Belfontaine, Ohio.

Filed Nov. 10, 1904. Serial No. 232,205.

Claim.—In a device of the character described, the combination of a cylinder having a series of grooves formed therein, pairs of heat-radiating strips of reticulated material having their inner edges flattened and bearing against the walls of said groove, and a fastening-strip inserted in each groove between the flattened ends of the strips and expanded to fill the spaces between the flattened ends of the heat-radiating strips and to retain latter in the groove, said strips extending radially from the cylinder, substantially as described.

820,285. Oil-Engine. James W. Cross, London, England. Filed Feb. 11, 1905. Serial No. 245,295.

Claim.—1. In an oil-engine, a power chamber and piston so relatively shaped that just before the piston completes its compression stroke it will divide the air-space within the combustion end of said chamber into separate closed compartments, that will be again placed in communication with each other only after the piston has made a part of its working outstroke, a valve adapted to admit air to said chamber on the suction-stroke of the piston, an oil-pump, means arranged to cause said pump to inject oil into one of said compartments after the same has been separated from the other compartment by said piston, and means for igniting the mixture of oil and air in the first compartment before this compartment is again placed by the movement of the piston in communication with the second compartment.

820,296. Method of Making Armored Tires. Valery Gallien, Paris, France, assignor to Societe-Anonyme, des Pneumatiques Cuir "Samson," Paris, France. Filed Jan. 26, 1903. Serial No. 140,642.

Claim.—1. The method of making armored tires which consists in cold-vulcanizing the flesh side of chrome-tanned leather to rubber tires, substantially as set forth.

820,343. Vehicle-Body. William H. F. Blume, St. Louis, Mo. Filed July 24, 1905. Serial No. 271,059.

Claim.—1. The combination with a Stanhope body, of a supporting-bracket hinged to the rear side of said Stanhope body, and a coupe-body constructed to be positioned on the bracket against the Stanhope body; substantially as specified.

820,377. Gearing. Hans Baersbalck, Hamilton, Ohio, assignor to The Hamilton Machine Tool Company, a corporation of Ohio. Filed April 3, 1905. Serial No. 257,714.

Claim.—1. The combination of a pivotally-supported frame, a shaft carried thereby, means to rotate the pinion longitudinally thereon, a second shaft journaled in fixed bearings and parallel with said first shaft, a cone of gears secured thereon to turn in unison, and means to move and maintain said pinion into engagement with either gear of the cone.

820,408. Vaporizing Device for Internal-Combustion Engines. Bernt Garllus, Madison, Wis. Filed July 21, 1904. Serial No. 217,574.

Claim.—1. In a mixer for internal-combustion engines, the combination with the body having the substantially straight inlet-passage therethrough and the nozzle for the admission of hydrocarbonaceous material, projecting transversely into said passage and having its discharge-opening in the end thereof, a valve having its end fitting in said discharge-opening, a stem on said valve extending across the inlet-open-

ing, a diaphragm connected centrally, directly to said stem and operated by the inspiration of the engine to lift the valve and open the nozzle and means for regulating the inflow of carbonaceous material; substantially as described.

820,444. Motor-Vehicle. Horatio W. Southworth, Mittineague, Mass. Filed Aug. 16, 1904. Serial No. 220,956.

Claim.—1. In combination, an axle, a non-reciprocating engine mounted thereon, a cross-bar above said axle, wheels on said axle, and means supporting said cross-bar on said axle at both sides of each of said wheels, said engine passing between said cross-bar and said axle.

820,446. Friction-Clutch. George Stahl, Dayton, Ohio, assignor of one-third to William P. Coffman and one-third to John I. Coffman, Dayton, Ohio. Filed Dec. 14, 1904. Serial No. 236,783.

Claim.—1. The combination with the outer revolving part of an inner friction device consisting of a rim split transversely and circumferentially as set forth and means for forcing the parts on each side of said transverse slot in opposite directions to cause them to impinge the outer revolving part, substantially as described.

820,475. Rotary Washer for Vehicles. Jay D. Chapman and William R. McAttee, Oil City, Pa. Filed June 21, 1905. Serial No. 266,325.

Claim.—1. In a combination in a rotary washer for vehicles, a reservoir rotatable upon a supply-pipe leading thereto; said supply-pipe; a valve controlling the outlet end of said supply-pipe within said reservoir; a hose leading from said reservoir; and automatic mechanism connected with said hose and controlling said valve.

820,497. Gas Engine. Frederick H. Hurlburt, Alameda, and Thomas W. Munroe, San Francisco, Cal. Filed Feb. 24, 1905. Serial No. 247,105.

Claim.—1. In a gas-engine, two single-acting motive cylinders, with pistons connected to oppositely-placed cranks on a common shaft, a double-acting compression-cylinder between said motive cylinders, having a displacement volume greater than either of said motive cylinders, a piston in said compressing-cylinder connected to a crank on the common shaft at an angle to the motive piston-cranks, inlet-valves in said compressing-cylinder at both ends, pipes and passages from a fuel-supply to said inlet-valves, a valve at each end of said compressing-cylinder with passages leading to each motive cylinder respectively, a check-valve in each motive cylinder at the terminus of each of said passages, circulatory passages between the compression-cylinder and the motive cylinders, and a regulating-valve in said circulatory passage, substantially as specified.

820,520. Ball-Bearing. August Riebe and Paul Bruhl, Berlin, Germany. Filed Jan. 19, 1905. Serial No. 241,770.

Claim.—1. In a ball-bearing, an intermediate piece having a plate formed with a recess shaped to receive a portion of the ball.

2. In a ball-bearing, an intermediate piece having end plates and an interposed spring, and a C-shaped casing disconnected from the spring and extending over the spring and expansible to permit its withdrawal sidewise from this spring.

820,535. Electric Igniter for Explosive-Engines. George J. Weber, Kansas City, Mo. Filed Feb. 16, 1903. Serial No. 142,661.

Claim.—1. In igniters for explosive-engines, the combination with an electric circuit having included therein two electrodes, of means for normally holding the electrodes in contact with each other, a magnetic field, an oscillatory armature located in said field and included in said circuit, a reciprocating slide, means controlled by the running of the engine for moving the slide in one direction, means for oscillating the armature by means of the slide, means for separating the electrodes when the slide is moved in said opposite direction, and means for timing the movement of the said slide in said opposite direction.

820,549. Means for Cooling Engine and other Cylinders. Edward P. Caldwell, Chicago, Ill., assignor to Charles W. Caldwell, Waterloo, Iowa. Filed Dec. 22, 1904. Serial No. 238,020.

Claim.—1. The combination with a cylinder provided on its upper portion with longitudinally-arranged fins, and a jacket surrounding the lower portion of said cylinder, said jacket having an upper wall portion in which a series of openings registering with the spaces between said fins, of means for admitting a cooling agent to the space between said cylinder and jacket, substantially as specified.

820,575. Wheel-Bearing. Frederick G. Hughes and Robert P. Stout, Bethlehem, Pa., assignors to Bethlehem Steel Company, South Bethlehem, Pa., a corporation of Pennsylvania. Filed Dec. 10, 1902. Serial No. 134,665.

Claim.—1. The combination of a journal having a bearing portion, a hub, an internal removable sleeve therein, having an end flange with an annular groove, anti-friction-rolls between said bearing portion and sleeve and extending at their ends into said grooves, and means to prevent the sleeve from turning while permitting its longitudinal withdrawal, substantially as set forth.

820,626. Explosive-Engine. John F. Crowley, Milwaukee, Wis., assignor of three-fourth to Marguerite Pauli, Milwaukee, Wis. Filed Nov. 2, 1903. Serial No. 179,534.

Claim.—1. In an explosive-engine a compressed-air tank having connection with the cylinder, an air-valve controlling the passage through said connection, a slide operated by the engine, a spring-pressed trigger-arm pivoted to the slide, a roller carried by the trigger-arm, a plate guiding the roller so that the trigger-arm will engage and operate the air-valve, said plate having a recess into which the roller may pass, and a slidable plate controlled by the engine-governor and having a recess to register with the recess of the first-named plate to allow the roller to enter said recesses when the governor operates upon said second plate.

820,636. Electric Ignition Apparatus. Gustave E. Franquist, New York, N. Y. Filed June 24, 1905. Serial No. 266,751.

Claim.—1. A circuit-controller for hydrocarbon-motors comprising a frame or support having a fixed journal, a shaft journaled in said journal and having a collar thereon, a primary timer and a rotating secondary switch on said shaft, a casing having an annular collar disposed to engage said first-named collar and journaled on said fixed journal, a brush mounted in said casing and bearing on the timer, and conductors supported adjacent to said switch.

820,673. Tire for Vehicles. Thomas C. Sanderson, West New Brighton, N. Y. Filed July 14, 1905. Serial No. 269,575.

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